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*A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation.*

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## VACATIONS.

IT WAS one of the Old World poets who said that, "Rest is not quitting the busy career. Rest is the fitting of one for his sphere." Most men will doubtless agree with the poet, that rest is indeed a necessary factor in the conservation of mental and physical energies, after a year of ceaseless activity in the arena of business and industry.

Rest, recuperation and vacation are synonymous terms, which have their legitimate function in the vast economy of nature. Rest is, in short, a part of the natural order of things. It conserves and revivifies life, energy and action.

The phenomenon of sleep, which belongs to the category of rest, affords a striking illustration of the truth, that rest strengthens and stimulates body and mind, rendering both decidedly more potential and effective. Most men can testify to the truth of this, especially when they have attempted to accomplish a day's work after a sleepless night.

It is foolhardy and imprudent to defy the laws of nature or to proceed contra-wise to her demands, and yet there are men who boastfully proclaim to the world, that they do not believe in vacations and that they have not had a vacation in twenty or thirty years. They feel quite contented about it, too, for it appears that the daily grind has become their second nature and they would feel positively restless if they withdrew for a few days or weeks.

Nature in all her infinite beauty in earth, sea and sky has no charms for the anti-vacation man. The lure of daisy-bedecked fields, the symphony of song birds, the musical rush of waterfall or cataract, the cooling breezes of the white-capped Atlantic, the romantic grandeur of mountains and canyons, all of these and much more, make but a futile appeal to the busy, busy man who hates a little spell of rest. Obviously such a man's mentality and sense of proportion must be badly warped and distorted. The end and aim of his existence is to be always working and never resting—even though he can well afford to enjoy the fruits of his labor.

Such a policy is suicidal in the final analysis. It is an example of shortsightedness which is destructive rather than constructive to the individual concerned. It means in some instances the sacrificing of five or ten years of the vacation-hater's life, superinduced of course by overwork.

"I knew an exceedingly industrious business man who boasted that he hadn't taken a vacation in twenty-five years," said a prominent man in the trade the other day, as he was preparing to go on his annual jaunt in the picturesque lake region of northern Wisconsin.

"Finally, one day there was a funeral down the street. It was his day off. They buried him. He went on his long vacation in Abraham's bosom fifteen years before schedule time."

**Rest and relaxation are necessary and well-nigh indispensable adjuncts to the busy career. It is eminently proper and natural that rest should follow toil, for foolish indeed is the man who toils merely for the sake of toiling. Work is a means to an end, namely a true and full appreciation and realization of the joy of living. Humdrum and colorless is the life of the man who never seeks the inspiration and exhilaration of a vacation in woodland depths or beside the billowy sea with its health-giving ozone. The pallor of the office or the shop is engraven on his countenance, but yet he plods on in his insatiable quest for gold, which sooner or later culminates in a siren-like climax just as he is about to harvest his bumper crop of dollars.**

**Moral:—Take a vacation once a year even though you have to borrow the railroad fare.**

# LEGAL DECISIONS

### Unintentionally Executed Notes and Contracts.

The person who, without fault on his part, signs a note under a misapprehension induced by the payee that it is an instrument of a different character, the Supreme Court of Iowa holds, in First National Bank vs. Hall, 151 Northwestern Reporter, 120, will not be bound thereby. This is for the reason that there is no intelligent assent to the terms of the contract—no meeting of the minds of the parties thereto. This is quite as true where a person has in some manner, whether from indirection or otherwise, signed a promissory note when not conscious of so doing. No man can well be made a party to a contract without his own consent. The mind must act in the execution of the particular agreement, and it must be executed as and for what it purports to be. If the mind is drawn away from it by fraud or otherwise, and the party is induced, as and for another instrument than that which it purports to be or was to be, to sign it, through some scheme or accident, then there is no consent and no delivery made or authorized to be made of that which is so signed. Most of the cases are where the maker was deceived into signing a contract or note under the supposition that it was a different instrument, but, if signed unintentionally—that is, when unconscious of signing—the paper thus signed is quite as vulnerable to the objection that it is not the contract of the signer as though the signing were induced by deceit. It seems very clear that if the maker never intended to sign the instrument, whether it be a contract or promissory note, the signature cannot be regarded as his act in contemplation of law. The difficulty in such a case is to exculpate himself from the charge of negligence in the signing of the note, which is essential to defeat a negotiable instrument in the hands of an innocent purchaser for value. It is well settled that if a person who can read signs an instrument without reading or satisfactory excuse for not doing it, this is such neglect as will preclude him from asserting that he was misled as to the character of the instrument in executing it. And, even though a person may not be able to read, if others are present who can read, and upon whom he may call for assistance, and he signs without invoking their assistance, he is precluded from interposing a defense on the ground of fraud.

### Requirements for Partial Payments to Stop Running of Statute of Limitations.

The trend of authority is that, in order for a partial payment to stop the running of the statute of limitations or outlawing of a debt or obligation, according to the Supreme Court of Washington in J. M. Arthur & Co. vs. Burke, 145 Pacific Reporter, 974, the partial payment must have been a voluntary payment made or authorized or ratified by the party against whom the payment is invoked as stopping to that time the running of the statute. A creditor cannot by any act of his own, such as the giving of an unauthorized or surreptitious credit, stop the running of the statute. When reliance is placed upon a part payment to remove the bar of the statute and the payment is denied, the burden of proving the payment within the statutory period rests upon the party asserting it. It is the fact of partial payment, and not the formal entry of credit, which tolls the statute, or stops its running before that time. The creditor will not be permitted to defeat the statute by making belated credits. There must be affirmative proof of the time of actual payment. The indorsement by the holder of a note of a payment thereon is not competent evidence of the true date of payment so as to take it out of the operation of the statute. The rationale of these principles is this: The payment must be made under such circumstances as to show an intentional acknowledgment by the debtor of his liability for the whole debt as of the date of payment, from which arises a new implied promise, supported by the original consideration, to pay the residue.

### Extent of Good Faith Required of Partners.

There is no relation of trust or confidence known to the law, the Court of Appeals of Kentucky says, in Rankin vs. Kelly, 173 Southwestern Reporter, 1151, that requires of the parties a higher degree of good faith than that of a partnership. This obligation of partners to exercise the utmost good faith towards each other applies, not only during the life of the partnership, but extends to their settlements and dealings while negotiating for the formation of the partnership, as well as for the purchase or sale of a partner's share in the business. Where, for example, one partner purchases his co-partner's interest in the firm; if, through mutual mistake, the amount of liability assumed by the outstanding partner is largely in excess of the estimated amount, the sale may be avoided. The transaction may also be avoided, not only for actual fraud, but for a violation of that high degree of good faith and fair dealing which the law requires of the partners in their transactions with each other. It is therefore held that, where one party seeks to benefit himself at the expense of the firm or of his co-partner, he will be required to show, not only that the law is on his side, but that his conduct conforms to the high standard of honor required by the partnership relation. To secure an avoidance, therefore, misrepresentation by the benefited partner is not necessary. Where one of the partners, having the active control of the business, secures an advantage by means of concealment, the purchase will be held void.

### Inference and Intention in Unfair Competition.

In cases of unfair competition, the fraudulent intent, the United States Circuit Court of Appeals, Eighth Circuit, says, in Wolf Bros. & Co. vs. Company, 206 Federal Reporter, 611, is often inferred from the facts, sometimes against the sworn protestations of the infringer. If a manufacturer or wholesale dealer willfully puts up goods in such a way that the ultimate purchaser will be deceived into buying the goods of another, it is no defense that he does not deceive and has no intention of deceiving the retailer, to whom he himself sells the goods. The question is whether he has or has not knowingly put into the hands of the retail dealers the means of deceiving the ultimate purchaser. In such cases the complainant will not be held to specific proof that ultimate purchasers were deceived and limited to loss of profits thus established. Loss will be presumed.

# The Blow-off Tank and Its Connections

By JOSEPH GRAHAM

THE blow-off or exhaust from high pressure boilers should never be discharged directly into the drainage system. A tank should be provided in such cases, into which the exhaust steam first enters, where the steam is condensed and the water cooled to a lower temperature.

The discharge of live steam directly into a sewerage or drainage system has the effect of heating the water in the traps. The result is vaporization and, oftentimes, the emission from these appliances of bad odors, which permeate the building and cause annoyance.

It is also well to bear in mind that where cast iron pipes are installed, with lead caulked joints, the lead is apt to be worked out of the hubs, causing the joints to leak from the expansion and contraction of the lines.

The accompanying sketch, Fig. 1, shows a blow-off tank and the manner of making connections. The tank, generally, stands almost full of water.

A portion of the water entering the blow-off tank from the boiler, being released from pressure, turns to steam and is carried away by means of the vapor pipe, shown in the sketch, Fig. 1.

As the hot water from the boiler enters the tank, it forces the cold water at the bottom of the tank to find egress through the overflow pipe leading to the sewer, and is finally discharged into the house sewer on the sewer side of the main trap.

The equalizing pipe is provided to allow air to enter the overflow pipe, which prevents the siphoning of the water out of the tank.

Where cast iron tanks are employed instead of wrought iron, they are usually sunk in the ground.

Either wrought iron or cast iron pipe may be employed for blow-off connections. Where cast iron pipe is installed, the best practice is to employ flange or rust joints for connections.

A plan view of a blow-off pipe with its connection to

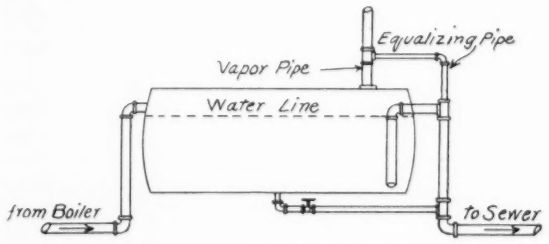



Fig. 1.—Blow-off Tank and Connections.

house sewer is shown in Fig. 2. A trap is located on the outlet pipe from the blow-off tank.

In some plumbing codes, the steam exhaust, drip or blow-off pipes are required to be connected with storm drains, where such drains are provided.

### The Size of Blow-Off Tanks.

The size of the blow-off tank may be comparatively small. A 24-inch x 48-inch tank is generally of sufficient size for boilers up to 48 inches in diameter. A 36-inch x 72-inch tank will take care of a 72-inch diameter boiler.

The size of blow-off tanks can be determined from a consideration of the amount of water that should be blown off a steam boiler at any one time. The smaller the quantities of water blown off at any one time, the smaller the tank required.

Since one gauge of water has been found all that is necessary to blow-off, the tank will be of sufficient capacity if it will contain that quantity of water.

The size of a tank can be found by multiplying length of boiler in feet by diameter in feet and multiplying the

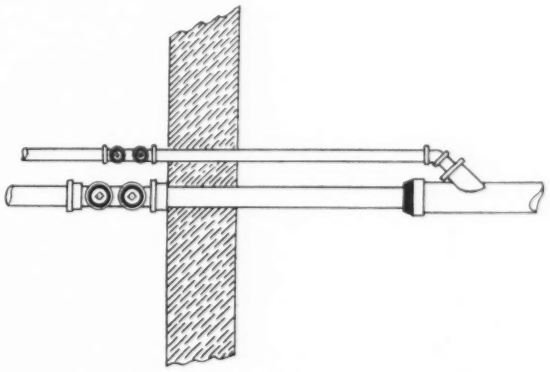


Fig. 2.—Plan of Connection of Blow-off Pipe with House Sewer.

product by one-third. The result will be in cubic feet of tank, which is easily reduced to gallons.

The accompanying table shows the stock sizes of blow-off tanks:

**Table of Sizes of Blow-Off Tanks.**

| Capacity Cu. ft. | Capacity Gal. | Length Feet | Diam. Inches | Approximate Weight |
|---|---|---|---|---|
| 33 | 250 | 6 | 30 | 500 |
| 43 | 325 | 8 | 30 | 650 |
| 53 | 400 | 10 | 30 | 800 |
| 63 | 475 | 8 | 36 | 800 |
| 80 | 600 | 10 | 36 | 950 |
| 90 | 700 | 12 | 36 | 1100 |
| 133 | 1000 | 12 | 42 | 1400 |
| 166 | 1250 | 12 | 48 | 1700 |

One blow-off tank is ample for a number of boilers connected in battery. This is true where the water in the tank is allowed to cool for a long enough period between the blowing off of each boiler. The statement also holds good where cool water is provided to replace the hot water.

A capacity of 30 per cent of largest boiler connected is allowed, in some cases, in determining size of blow-off tank.

### Connections.

Inlets to blow-off tanks are 2 inches in diameter. In order that the water from the tank will be discharged into the sewer at a low velocity, the diameter of the outlet pipe should be 2½ or 3 inches.

The vapor pipe is made 2 inches in diameter, except where it has an elevation of over 100 feet, where it is increased to 2½ inches.

### Temperature of Water.

The temperature of the water allowed to be discharged into the sewer from the tank varies in different cities from 120 to 180 degrees F., and where blow-off tanks discharge water at a higher temperature a cooling device is required.

# Water Supply, Plumbing and Sewage Disposal for Country Homes*

By ROBERT W. TRULLINGER,
Rural Engineer, Office of Experiment Stations

(Continued from Page 197 in August 14th Issue.)

In regard to other types of well lining or casing M. L. Fuller[1] says in his book on "Water Supplies": "Cemented rock or brick linings protect the well from pollution, except at the bottom, as long as the walls are not cracked. They also prevent the entrance of sediments and animals, and do not impart a taste to the water. Iron casings are used in both rock and unconsolidated materials. They are usually used in deep wells. They may be either iron tubing 1 to 4 inches in diameter, or sheet-iron casings 4 to 16 inches in diameter, with snug joints. They are adapted to wells of all depths in which water is obtained from a stratum below the casing or from a stratum between cased sections, or in case it is decided to procure water from a number of strata."

Fig. 9.—Iron Well Casing with Pump and Cylinder Inside.

Iron casings may be obtained from jobbers or manufacturers of pumping apparatus. Fig. 9 shows a type of iron casing with pump inside.

**Protective Well Curbings or Coverings.**

Both shallow and deep wells should have water-tight curbs, in addition to impervious casings. The drip from the pump is often the cause of serious pollution. The casing or lining should extend 6 or 8 inches above the ground surface, except when a dry well is used, and a concrete curbing should be built over the top with a slope away from the pump opening in the center. This cover should extend at least 2 feet beyond the edge of the well if a dug well, and if a bored or driven well the cover should extend 4 to 6 feet in all directions from the center. The outer edge should be raised to form a trough emptying into a tight drain, or a drain trough should be provided to catch the drip. E. Bartow suggests that the earth be excavated for 4 feet outside of the regular casing to a depth of 4 feet, and that an extra 4-inch coating of waterproof Portland cement mortar be placed outside this casing with 4 to 6 inches of mortar in the bottom of the excavation. This bottom should have a raised portion at its outer edge to divert the seepage water to a tile drain. This arrangement prevents surface water that has not been filtered through at least 4 feet of earth from gaining access to the well. Fig. 10 shows a combination of these protective arrangements.

**Springs.**

Springs are good sources of water supply, since they usually come from great depths within rock, or are filtered through many layers of sand and gravel. However, they are subject to pollution from the same sources as wells, and should be closely watched in this respect. Farm spring supplies are often polluted by the drainage from buildings and stock pens. Spring water supplies from limestone are also subject to pollution from distant garbage and sewage dumps in sink holes, as shown in Fig. 6. The same precautions should be taken for safeguarding

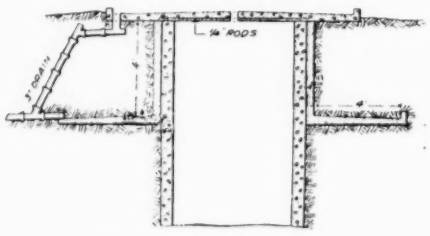



Fig. 10.—Well Protection.

spring supplies as in the case of wells, and in addition the spring should always be fenced to keep out stock. It should be cleaned of all trash and walled in to form a kind of reservoir, as shown in Fig. 11. The supply may then be conducted to the house by gravity or by means of a hydraulic ram. Where a spring is small a large vitrified tile may be so placed as to form a small storage reservoir. The reservoir should be covered and protected as much as possible from filth and vermin. After rains the spring should be examined for any signs of turbidity which may indicate pollution from distanct surface sources. Spring supplies should be frequently examined for pollution of any kind, and the water should be boiled before drinking, if possible, although this is not absolutely necessary in all cases.

**Pumping, Storage and Distribution of Water.**

After a pure water supply is made available the first things to be considered are the quantity of water needed, choice of pumping equipment and means of storage and distribution.

The quantity of water needed depends on the power used and whether the service is for the entire farm or

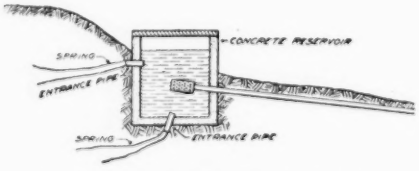



Fig. 11.—Method of Walling in Springs.

for the house only. Hand-operated systems are applicable where small quantities are required for house service only, but in case water is wanted for stock also the use of a windmill, engine, electric motor or hydraulic ram is necessary. If a windmill is used the storage should be large enough for at least three days' supply,

*Prepared and published under the Direction of the U. S. Department of Agriculture, Washington, D. C.

[1]M. L. Fuller. Domestic Water Supplies for the Farm. New York and London, 1912.

to provide water in case of calm weather. Where the other sources of power are used the storage capacity need not exceed one day's supply. The following table gives approximate quantities of water required per day:

**Approximate Quantities of Water Required per Day.**

| | Gallons |
|---|---|
| Each member of the family for all purposes will require. | 25-40 |
| Each cow will require | 12 |
| Each horse will require | 10 |
| Each hog will require | 2½ |
| Each sheep will require | 2 |

The water consumption will vary from day to day and with the seasons. Fire protection should also be considered, and in determining the size of tank the maximum amount likely to be required should be provided.

For a family of six persons a 200-gallon supply should be sufficient if the water is used in the house only. On a farm where water is supplied to a family of six persons, 10 horses, 12 cows, 25 hogs and 15 sheep, the daily storage supply should be at least 500 gallons, with whatever additional amount, if any, the farmer deems necessary for fire protection.

There are three general systems of storage and distribution which may be readily applied to farm conditions, viz., the gravity, pneumatic and auto-pneumatic systems.

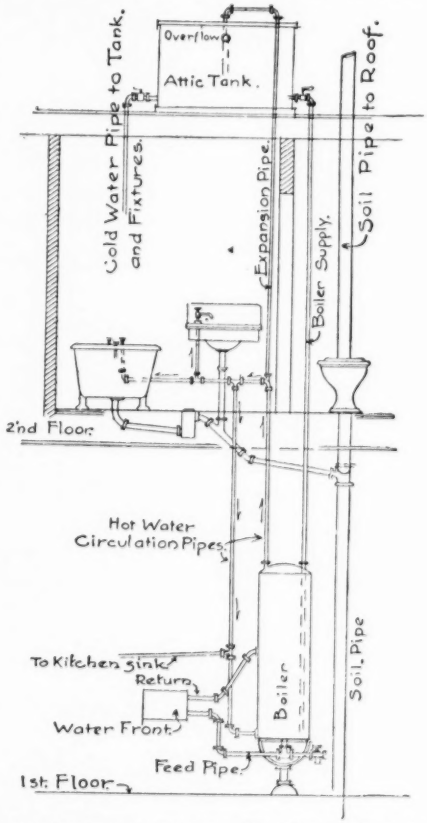



Fig. 12.—Gravity Supply System with Storage Tank in Attic.

### The Gravity System.

In the gravity system water is forced into an elevated tank placed higher than the highest discharge cock. A storage tank may be placed in the attic, on the roof, or on a tower outside. The agricultural experiment station at Ames, Iowa, has designed a silo with the storage tank placed on top. Fig. 12 shows a gravity system with the storage tank in the attic, and Fig. 13 shows the storage tank placed on the windmill tower.

Since there is considerable frictional resistance to the flow of water through the distribution pipes, the tank should be placed at least 10 feet higher than the highest discharge cock to insure a flow under pressure.

Water weighs 62.5 pounds per cubic foot, or about 8.4 pounds per gallon, so that in placing a tank in the attic or on the roof the supports should be made sufficiently strong to uphold this weight.

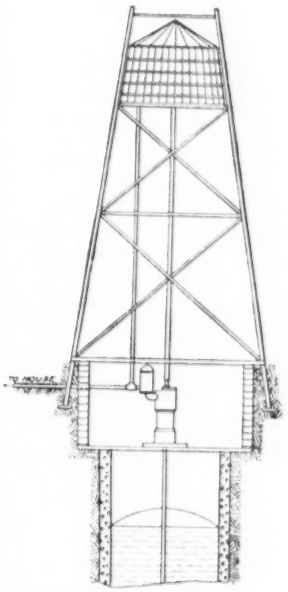


Fig. 13.—Gravity Supply System with Storage Tank on Windmill Tower.

Either wooden or galvanized metal tanks may be used. Wooden tanks may be obtained of almost any size, either circular or rectangular in shape. They are generally built of cedar or cypress, and are slightly conical. They are usually knocked down when shipped, and should be set up and filled with water as soon as received. The foundation should be good and solid and the weight of the tank should rest on the tank bottom and not on that part of the stave which projects below. The capacities of circular tanks may be found by the following: Capacity in gallons equals diameter in feet, squared, multiplied by 0.7854, multiplied by the depth in feet, multiplied by 7.48. One cubic foot equals 7.48 gallons. When located in buildings wooden tanks are commonly made rectangular. They may be lined with tinned copper, but never with lead. To obivate the use of heavy planking, rods are used to rigidly tie together the end and side braces.

Steel tanks may be purchased in circular, round end oblong, and rectangular shapes. Commercial sizes of these tanks are given in the following tables:

### The Pneumatic Tank System.

The pneumatic tank system consists of a force pump, an air-tight steel tank, necessary pipe, valves, fittings, etc., and power for operating the pump. The system may be a small one operated by hand, windmill, or small engine, or it may consist of a large pump operated by a powerful engine with two or more tanks of large capacity. The tank may be placed in the basement or underground, thus keeping the water cool and preventing freezing. Fig. 14 shows a pneumatic system with the tank in the basement and supplied by a hand force pump.

*Round storage tanks.*

| Diameter. | Height. | Capacity. | Diameter. | Height. | Capacity. |
|---|---|---|---|---|---|
| *Feet.* | *Feet.* | *Gallons.* | *Feet.* | *Feet.* | *Gallons.* |
| 3 | 2 | 106 | 5 | 3 | 440 |
| 4 | 2 | 189 | 5 | 4 | 588 |
| 4 | 2½ | 235 | 5 | 5 | 735 |
| 4 | 3 | 283 | 5 | 6 | 880 |
| 4 | 4 | 378 | 5½ | 8 | 1,400 |
| 4 | 5 | 470 | 6 | 2 | 423 |
| 4 | 6 | 567 | 6 | 2½ | 528 |
| 4 | 8 | 756 | 6 | 3 | 635 |
| 5 | 2 | 299 | 6 | 4 | 845 |
| 5 | 2½ | 368 | 6 | 5 | 1,056 |

This figure also well illustrates the water plumbing. Fig. 15 shows the tank in the basement supplied by a windmill deep-well pumping outfit. The tank may be set in the ground below frost line close to the well or house foundation.

In the operation of the pneumatic system water is forced into the air-tight tank, thus compressing the air into a smaller space and creating an air pressure which forces the water to the discharge cocks. In determining the capacity of the tank, then, it is necessary that about one-third of the computed storage capacity be added to provide space for the compressed air. The following table gives commercial sizes of pneumatic tanks:

*Round end storage tanks.*

| Width. | Height. | Length. | Capacity. | Width. | Height. | Length. | Capacity. |
|---|---|---|---|---|---|---|---|
| *Feet.* | *Feet.* | *Feet.* | *Gallons.* | *Feet.* | *Feet.* | *Feet.* | *Gallons.* |
| 2 | 2 | 4 | 118 | 4 | 2 | 14 | 820 |
| 2 | 2 | 5 | 150 | 4 | 2 | 16 | 945 |
| 2 | 2 | 6 | 181 | 4 | 2½ | 8 | 536 |
| 2 | 2 | 7 | 202 | 4 | 2½ | 10 | 756 |
| 2 | 2 | 8 | 236 | 4 | 2½ | 16 | 1,200 |
| 2 | 2 | 10 | 299 | 4 | 3 | 8 | 725 |
| 2 | 2½ | 8 | 299 | 4 | 3 | 10 | 915 |
| 2½ | 2 | 8 | 299 | 4 | 5 | 10 | 1,480 |
| 2½ | 2 | 10 | 378 | 5 | 2 | 16 | 1,200 |
| 2½ | 2½ | 8 | 378 | 5 | 2½ | 16 | 1,480 |
| 3 | 2 | 8 | 362 | 6 | 2 | 8 | 740 |
| 3 | 2 | 10 | 440 | 6 | 2 | 10 | 900 |
| 3 | 2½ | 8 | 440 | 6 | 2 | 16 | 1,420 |
| 3 | 2½ | 10 | 567 | 6 | 2½ | 8 | 900 |
| 3 | 3 | 10 | 662 | 6 | 2½ | 10 | 1,120 |
| 4 | 2 | 8 | 473 | 6 | 3 | 10 | 1,340 |
| 4 | 2 | 10 | 598 | 6 | 4 | 10 | 1,760 |
| 4 | 2 | 12 | 693 | 6 | 5 | 10 | 2,200 |

Tanks 4 feet long, 1 top brace; 5, 6, and 7 feet, 1 side and 1 top brace; 8 feet, 2 side and 1 top brace; 10 feet, 3 side and 2 top braces; 16 feet, 5 side and 3 top braces.

*Square end storage tanks*

| Width. | Height. | Length. | Capacity. | Width. | Height. | Length. | Capacity. |
|---|---|---|---|---|---|---|---|
| *Feet.* | *Feet.* | *Feet.* | *Gallons.* | *Feet.* | *Feet.* | *Feet.* | *Gallons.* |
| 2 | 2 | 4 | 118 | 3 | 2 | 10 | 448 |
| 2 | 2 | 5 | 150 | 3 | 2½ | 8 | 448 |
| 2 | 2 | 6 | 181 | 3 | 2½ | 10 | 565 |
| 2 | 2 | 7 | 210 | 3 | 3 | 10 | 673 |
| 2 | 2 | 8 | 240 | 4 | 2 | 8 | 478 |
| 2 | 2½ | 8 | 299 | 4 | 2 | 10 | 598 |
| 2½ | 2 | 8 | 299 | 4 | 2½ | 8 | 598 |
| 2½ | 2½ | 8 | 378 | 4 | 2½ | 10 | 748 |
| 3 | 2 | 8 | 360 | 4 | 3 | 8 | 718 |

Tanks 4, 5, and 6 feet long, 1 side and 1 top brace; 7 and 8 feet, 2 side, 1 top brace; 10 feet, 3 side, 2 top braces; longer and deeper tanks are extra well braced.

*Commercial sizes of pneumatic tanks.*

| Diameter. | Length. | Weight. | Capacity. | Diameter. | Length. | Weight. | Capacity. |
|---|---|---|---|---|---|---|---|
| *Inches.* | *Feet.* | *Pounds.* | *Gallons.* | *Inches.* | *Feet.* | *Pounds.* | *Gallons.* |
| 24 | 6 | 445 | 140 | 42 | 10 | 1,650 | 720 |
| 24 | 8 | 560 | 193 | 42 | 12 | 1,900 | 865 |
| 24 | 10 | 675 | 245 | 42 | 14 | 2,200 | 1,000 |
| 30 | 6 | 560 | 220 | 42 | 16 | 2,400 | 1,150 |
| 30 | 8 | 700 | 295 | 48 | 10 | 2,066 | 1,000 |
| 30 | 10 | 870 | 365 | 48 | 12 | 2,320 | 1,130 |
| 30 | 12 | 900 | 440 | 48 | 14 | 2,610 | 1,300 |
| 36 | 6 | 750 | 315 | 48 | 16 | 2,900 | 1,500 |
| 36 | 8 | 900 | 420 | 48 | 18 | 3,600 | 1,700 |
| 36 | 10 | 1,050 | 525 | 48 | 20 | 3,950 | 1,880 |
| 36 | 12 | 1,200 | 630 | 48 | 24 | 4,650 | 2,260 |
| 42 | 8 | 1,450 | 575 | 60 | 20 | 5,900 | 2,940 |

Each tank is equipped with a pressure gauge which will show the internal pressure at any time. If water is pumped into the tank until the pressure gauge registers 25 pounds, water can be forced about 60 feet above the tank. If a discharge cock 20 feet above the tank is opened, water is discharged until the pressure falls to 8.6 pounds, when it is insufficient to deliver the remaining water 20 feet high. It will also be found that when air is compressed in the same tank with water, the water gradually absorbs the air, thus making constant renewal of the air necessary. Both of the above troubles are overcome by compressing excess air in with the water until the pressure gauge again registers 25 pounds, if the tank is half full of water. Excess air pressure may be secured by an air intake valve in the suction pipe, controlled by hand, by a combination of air and water pump, or by use of an air compressor when power is used.

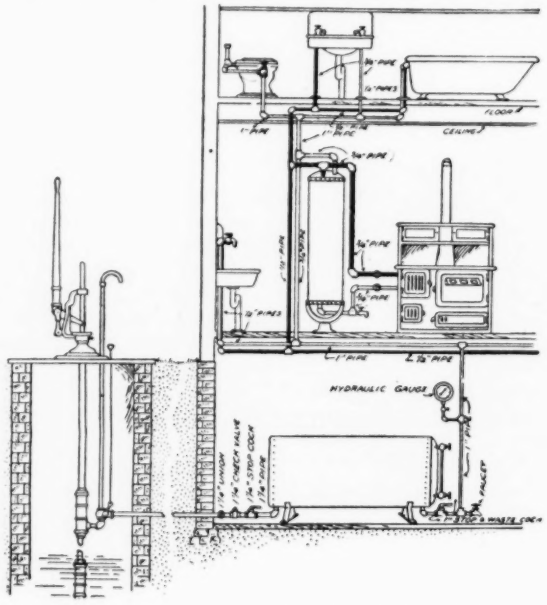



Fig. 14.—Pneumatic Tank Supply System with Tank in Basement, Supplied by Hand Force Pump.

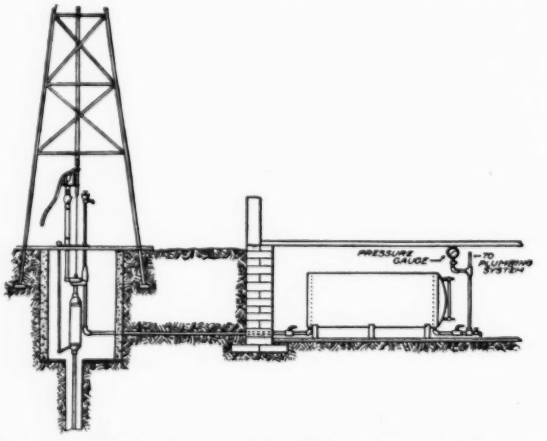



Fig. 15.—Pneumatic Tank Supply System with Tank in Basement, Supplied by Windmill Deep-Well Pumping Outfit.

(To be continued.)

Butte, Mont.—Walter Allen has been awarded the contract for plumbing and heating in the new Emerson School. The contract amounts to $19,250.

Harvard, Ill.—The Manley Hardware Co., of this city, has been awarded the contract for the installation of a steam heating plant in the school building at Zenda.

Goshen, Ind.—The Goshen Heating & Plumbing Co. has secured the contract for plumbing and heating in the new Science Hall at the Goshen College, in Parkside. Consideration, $8,500.

# Business Methods for the Plumber and Fitter

## XXXV—Business Science, Its Application to the Plumbing Trade and the Apprentice Question

By WESLEY A. FINK

Wesley A. Fink.

HITHERTO the application of science to business has been confined to the mechanical or technical sides of manufacture and commerce. Men's minds have been turned almost exclusively to the invention of machines and processes for the perfection of plant or shop, and other purely physical features of production. In these fields of effort the great triumphs of modern science over material obstacles have been won. But an equally great oportunity for the application of scientific principles exists on the side of business methods and management. The existence of this opportunity suggests a fundamental question: Are these industrial, commercial and financial sciences—or scientific principles—capable of being applied to these branches of human effort?

When the manufacturer establishes a department of accounts, tries to trace his exact cost of production, makes contracts for purchase or sale, reorganizes a department of his plant, borrows money, considers market conditions, and seeks favorable transportation rates, he confronts a series of problems, which, in spite of the prevailing opinion, are not exempt from the usual laws of cause and effect, but are governed by certain influences and tendencies, which may be studied, arranged and classified. His decisions on all these points are not made by some mysterious or erratic process of divination, but are governed by fundamental rules and maxims. The manufacturer may even observe these principles unconsciously either from habit or because he has never voluntarily and formally codified them. But such rules and principles do exist, and are followed, none the less.

The work of each manufacturer in solving his own problems is repeated countless times by others. With slightly different circumstances of time and place and magnitude, some calculations must be made repeatedly in all parts of the country, where such business exists. But is the experience so gained worth nothing to others? Is a correct decision on all these points the result of a mere whim of chance, and must the succeeding generation begin entirely anew the great scientific process of industrial organization and management, inheriting and bequeathing nothing toward the perfection of our economic system?

Certainly the very statement of these questions affords their answer. The business man works out and follows definite, well-established principles. That they may be examined and ascertained is no longer a matter of question. The principles of transportation, credit, finance, business law, accounting, industrial management, insurance, etc., have all been arranged in systematic logical order and taught with precision.

Business science is no longer the dream of an enthusiast, but an accomplished fact, and its results are now being rapidly brought to the services of the leaders of industry and commerce. The development and applications of business sciences have placed us in a position to cope with one of the greatest problems of modern American business, viz., the shortening of the period of active business life. With the concentration of business capital, the application of new inventions and the consequent demand for new types of men, there has come a new tendency to entrust to younger men the executive work of large industrial and commercial plants. Whatever its causes and disadvantages, the new age limit must be reckoned with as an important feature of our industrial system. If the period of active work in executive positions is to be shortened, those who enter such work have imperative reasons for starting out with a more thorough mastery of the business sciences which are applicable to the undertaking. The shorter the period of activity, the more complete must be the preliminary training and equipment.

Master plumbers what are you doing to assure yourselves of a never ending supply of trained workers, from which the skilled craftsmen, foremen, superintendents and business managers of the next generation will be recruited? Is your boy to succeed you in your business? Is he to be your right hand man as your business grows and prospers, before you lay down the reins that a less strenuous existence is to be yours?

From the moment of his entry into a plumbing shop as apprentice, a boy should be given such education and training as will not only make of him a competent and skillful journeyman—a master of the trade as a trade—but as complementary to this he should also be given that knowledge of commercial forms and usages, that grasp of methods of business, which alone can make of him, one competent and skillful as a manager—a master of the trade as a business.

Not one master plumber in a thousand but thinks he does his whole duty to the apprentice by teaching him the trade in the four years the youth is supposed to be "learning." Very many of these master plumbers are earnest, sincere and competent, both as plumbers and instructors; they give the best they have to their boys. But to suggest that the apprentice should be given in addition an idea of cost and value of plumbing, an insight into methods of carrying on business, an adequate conception of the pitfalls that line the path, and the means which experience has shown most desirable for their avoidance, to suggest this would be to invite the laugh of scorn. Yet negligence or refusal to give such instruction is directly responsible for a vast amount of the price-cutting, the heart-burning, the profit-losing, the sheriff-coming, that mar the fair field of plumbing today. Educate the apprentice and journeyman. Give each as thorough knowledge of procedure at the desk, as with the soldering tools, pipe tongs and wrench, stocks and dies, drawing board. And two things, greatly to be desired, will soon come to pass. Fewer unprepared work-

men will yield to the desire to "start" a little shop and those, who do branch out for themselves, will be so much better prepared, that both they and their former employers will be in a position to do better work at more consistent and satisfactory prices and at greater profits.

The average plumber begins in most instances, as apprentice in a well-established and successfully conducted shop. He devotes the best years of his youth to learning the trade, not the business, and it is small wonder, that when he accumulates enough money to commence his business career, he finds himself minus business ability.

## HOW TO BEND BRASS TUBING.

Editor "Domestic Engineering":—How can we bend or make an offset of brass tubing that is not annealed, both ⅜-inch and 1¼-inch?

Keokuk, Iowa. C. K. P.

Correspondent will find it a very hard matter to attempt to bend or make an offset in large brass tubing or in tubing as large as 1¼ inch without annealing the same.

Small brass pipe may be bent by filling it with melted rosin pored into the pipe hot before the bending process is attempted, but the larger tubing will break if the same method is tried. After bending the pipe the rosin may be melted out of it by heating.

## HOW TO FIGURE SCHOOL HOUSE VENTILATION.

Editor "Domestic Engineering":—I never figured ventilation for school house work, and I would like to have you tell me how to figure a class room to get six to seven changes of air per hour, and how you figure the cold air inlet and the size of the register above the indirect in the floor.

Saginaw, Mich. J. F. K.

As correspondent makes mention of indirect radiation we understand that he refers to a gravity system of ventilation.

A gravity system of ventilation should be designed in such a manner that the proper supply of air may be had during periods when its movement is retarded by conditions of the weather. An inside discharge temperature of 70 per cent and an outside temperature of from 40 to 50 per cent may be considered as a basis for estimating.

The authorities in various states demand that a certain quantity of fresh air shall be furnished each pupil hourly or per minute, this air to be so heated or tempered and admitted to the rooms in such a manner as to avoid dangerous draughts. The usual requirement calls for 30 cu. ft. of fresh air per pupil per minute.

The average corner class room may be considered as being about 28x32 feet in size with a ceiling 12 ft. high, accommodating from 40 to 50 pupils.

For such a room the stacks of indirect radiation, when used for ventilation only (the heating system being direct), should each contain about 250 sq. ft. of heating surface. This amount will, under ordinary conditions, provide an air change six or seven times per hour.

A rule which may be used, and which provides slightly more radiation than stated above, is to figure 1 sq. ft. of radiation for each 200 or 250 cu. ft. of air per hour. Proper results have been had by providing 275 sq. ft. for N. W. corner rooms, 250 sq. ft. for S. W. corner rooms and 225 to 240 sq. ft. for rooms having but one side wall exposure.

The area of vent flues may be 5 sq. ft. for the first floor rooms and 6 sq. ft. for second floor rooms. Mixing dampers should be provided for each flue and these should be under the control of the teacher. Ten sq. in. of vent and hot air flues for each pupil or person may be considered a minimum requirement.

The size of vent flue and cold or fresh air duct may be proportioned from the following table:

| Cu. Ft. of Air in Room | Size of Vent Flue | Area of Cold Air Duct |
|---|---|---|
| 6,000 | 17x17 in. | 144 sq. in. |
| 7,000 | 17x17 in. | 144 sq. in. |
| 8,000 | 17x17 in. | 144 sq. in. |
| 9,000 | 21x25 in. | 256 sq. in. |
| 10,000 | 21x25 in. | 256 sq. in. |
| 11,000 | 21x25 in. | 256 sq. in. |
| 12,000 | 21x25 in. | 256 sq. in. |
| 14,000 | 25x31 in. | 400 sq. in. |
| 16,000 | 25x31 in. | 400 sq. in. |

The registers should have a free area 50 per cent greater than the hot or cold air ducts.

## HOT WATER HEATING SYSTEM FOR GARAGE.

Editor "Domestic Engineering":—Will you kindly inform me if the hot water system shown by sketch, Fig. 1, will work successfully in a garage 18 by 18 by 9 feet, with three windows 2 by 3 feet; one side all doors, three sides exposed, except one corner 3 by 4 feet for boiler room?

A is tank heater, with 250 square feet capacity; B is pipe coil made up of 2-inch pipe and fittings; C is flow

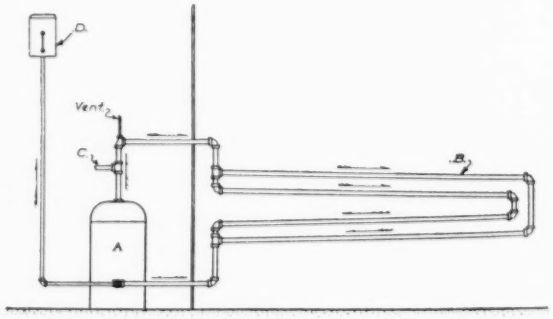



Fig. 1.

outlet for coil on other side; D is expansion tank, with a capacity of 5½ gallons.

I would like to know if flow pipe, coils, and returns should pitch as shown by arrows, and if coils containing 160 feet of 2-inch pipe, giving 96 square feet of radiation, are sufficient to give between 50 and 60 degrees of heat?

Scranton, Pa. L. G. S.

The sketch submitted with this communication is illustrated by Fig. 1, and shows the method of connecting the coil on one side of the garage, and also the boiler and expansion tank connections. Based upon the supposition that the garage is well built and tight (as correspondent says nothing regarding the construction of the building) and considering exposed wall and glass sur-

face there should be placed about 175 square feet of radiation to maintain a temperature of from 50 to 60 degrees in zero weather. In arriving at this result the doors in the front of the garage are considered as glass surface.

The general arrangement of the piping system as shown by correspondent's sketch is good and the pitch of the piping as indicated by arrows is correct. An improvement can be made to the circulation by increasing the motive power by extending the flow pipe from the heater

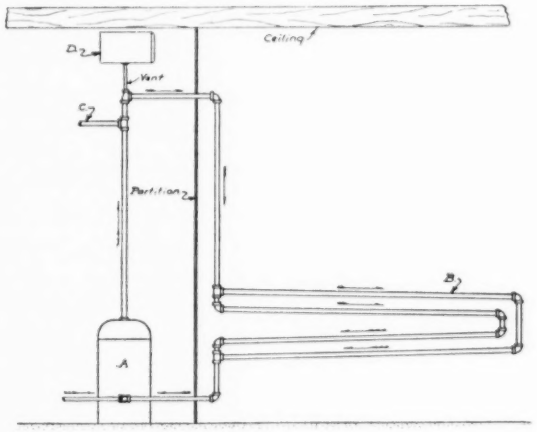



Fig. 2.

to as high a point as possible and then drop down with the flow pipe to each coil. The expansion tank should be connected from the top of this riser and the expansion tank may be used horizontally and suspended from the ceiling by iron straps. If located and connected in this manner the expansion line also becomes the vent pipe, all air being taken to the tank through this pipe and therefore no air valves are required on the piping.

We submit a sketch, Fig. 2, showing the method of installing the work in this manner.

## HOW TO DRILL HOLES IN CONCRETE WALLS OR FLOORS.

Editor "Domestic Engineering":—What, in your estimation, is the cheapest and best method to drill holes through concrete walls and floors? And what is the best way to cut out the rods in small holes, where it is impossible to use a hacksaw?

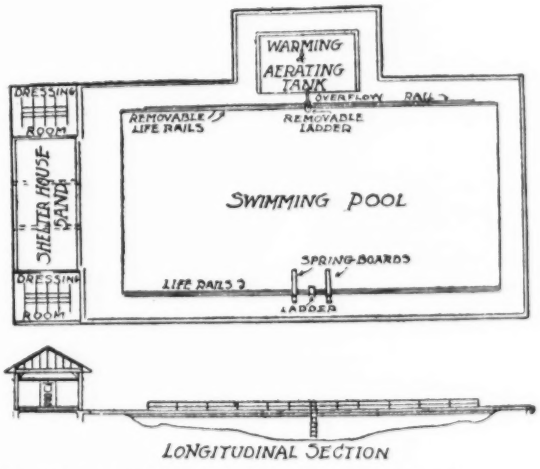
Milwaukee, Wis. G. A. T.

Answering the above communication we would say that practically the only method of drilling holes through concrete floors or walls is to use a stone drill or a rock drill. If there is a considerable number of holes to drill, a rock drill, steam or electric driven, can be used to good advantage. If, however, there are but few holes required, correspondent can make them by using a drill as used by masons in making holes through stone or marble. An inquiry from any up-to-date mason contractor will undoubtedly result in correspondent obtaining the proper tools for the work.

With reference to cutting out the iron or steel rods in small holes where it is impossible to get at them with a hacksaw we know of no other method than to drill through the rods or steel reinforcement. Here again electric current may be used for power by operating a motor-driven drill.

## PLANS CONCRETE NATATORIUM FOR CHICAGO SCHOOL CHILDREN.

Dr. Peter C. Clemensen, a member of the Chicago Board of Education, is a firm advocate of cleanliness among the pupils of the public schools of the city. He has recently suggested that the local authorities should build concrete swimming pools in small parks and playgrounds for the use of school children, the said pools to be constructed on a plan of 50 by 100 feet. "My plan also contemplates the construction of a smaller tank, 15 by 25 feet alongside the larger one," says Dr. Clemensen, which should be for the purpose of aerating and warming the water by means of the sun's rays. The water from this warming tank flows from the bottom of the larger tank, thereby creating a constant circulation, due to the difference in its temperature. The swimming pool is constructed in such a way that it can be used for a skating pond in the winter time. The ice will not burst the walls of the tank, but will expand over the edges. A shelter house at one end of the tank is for dressing rooms, and an artificial sand beach. Around the walk surrounding the tank, tall shrubbery can be planted to take the place of expensive and ugly fencing. The whole scheme has




Plan and Sectional View of Proposed Swimming Pool for School Children in Chicago.

been laid out in such a way as to be sanitary, serviceable and inexpensive, and is an effort to restore the old neighborhood clay hole in a new and sanitary form."

Dr. Clemensen deserves praise for his interest in the welfare of the city's children, as evidenced in his thoughtful consideration of this matter.

## BUSINESS CHANGES.

Johnston, Pa.—Morris Ward and Thomas McMonagle have purchased the plumbing business of the late John J. Waters, on Second Avenue.

Ashland, Ohio.—J. C. Heifner has purchased the interest of his partner, B. F. Reed, in the plumbing firm of Heifner & Reed, on East Second Street. Mr. Heifner will continue the business alone.

Bloomfield, Ind.—S. D. Miles has purchased the Bloomfield Sheet Metal Works in this town, and he has added plumbing and heating departments to the business. He reports that he has just secured the contract for installing a heating system in a school building.

# The Trade's Picnic Season at Its Height

## Master Plumbers' Associations in Many Parts of the Country Hold Successful Outings

### NEWARK PLUMBERS' ANNUAL OUTING.

The Master Plumbers' Association of Newark, N. J., held its twenty-second annual outing on Thursday, August 12th. Deviating somewhat from the accustomed boat trip which invariably was a feature of former outings, the outing party was taken to Seidlers' Beach on Lawrence Harbor, a quiet cove on the New Jersey coast. Here the plumbers and their guests had the beach and hotel all to themselves and they made the most of their privilege while there.

Secretary H. F. Baillet and Treasurer F. J. Sturn, both of the Newark Master Plumbers' Association.

The party, numbering nearly two hundred, left Newark on the Plumbers' special via the New Jersey Central. A light luncheon was served upon arrival at Seidler's and in the interval between then and three o'clock, when the "piece de resistance," a shore dinner with everything from clams to lobster, was served, the surf was an attraction to many. For the landlubbers Krimki's band and a trio of vocal artists were on hand to provide entertainment. Still others retired to the card tables for diversion.

Of course some of the sportsmen bewailed the absence from the program of the annual ball game, but this was soon forgotten in the variety of diversion. Altogether it was some day and, take it from Robt. Berla, who ought to know, if anybody, the dinner was "some eats, man, some eats." Bob has sampled them all along the Atlantic seaboard for the past twenty years and knows a shore dinner when he sees one.

Elmer Lutz, John Turbett, President Charles McGuire and Robert Berla; all of Newark, N. J.

Elmer Lutz, F. J. Sturn, Mat. Brady, President McGuire, John Turbett and Bob Berla were around all day, giving all the glad hand and smokes, and they worked hard to make the day the success it was.

State Secretary Beck, from Orange, was on hand and a contingent from Jersey City headed by State Vice-Pres-

J. H. Bernauer, of Newark, N. J.; B. J. Schweitzer, of Stroudsberg, Pa.; S. F. Wilson, of Newark; W. J. Cross, of Jersey City; John Maier and Louis Maier, of Newark, N. J.

At the Newark Master Plumbers' Outing.—Thomas Hoover, of the Van Ness Slate Co.; and S. J. Marshall, General Manager of the Space Saving Appliance Co., New York City.

ident Joseph E. Sprouls, came direct from their home town. Refreshments were served all day. In fact, nothing was lacking to make the outing an assured success and though rain came to dampen the latter part of the

At the Newark Master Plumbers' Outing.—Jos. A. Sprouls, R. Entwistle, J. T. Edge and W. J. Cross; all of Jersey City, N. J.

proceeding, seven-forty, departing time, rolled 'round all too quickly for the merry party.

## ANNUAL OUTING OF SOUTH MIDDLESEX MASTER PLUMBERS' ASSOCIATION.

The old saying that "It's always fair weather, when good fellows get together," was again exemplified when the members of the South Middlesex Master Plumbers' Association held their annual outing at Bass Point Harbor, Nahant, Mass., on August 4th.

Despite the inclement weather during the day and evening, the members of the association sallied forth in true picnic style with their wives and families. A little thing like rain did not appear to dampen the enthusiasm of the outing folks, and they refused to postpone the date, but were determined upon carrying out the day's program strictly to the letter.

Most picnic folks throw up the "sponge" and cry "quits" when rolling thunder clouds loom up on the horizon, but the Middlesex plumbers are a game and venturesome aggregation, who would hesitate for nothing short of earthquakes and as for a spell of rainy weather, it does not affect them.

At 1:30 o'clock they enjoyed a delicious dinner at the Point, where approximately 50 persons grouped themselves about the festive board.

Following the dinner, bowling, pool and other "indoor sports" were declared the order of the day. The fair sex proved themselves surprisingly clever at bowling, succeeding in some instances in "trimming" some of the men bowlers in a very effectual manner.

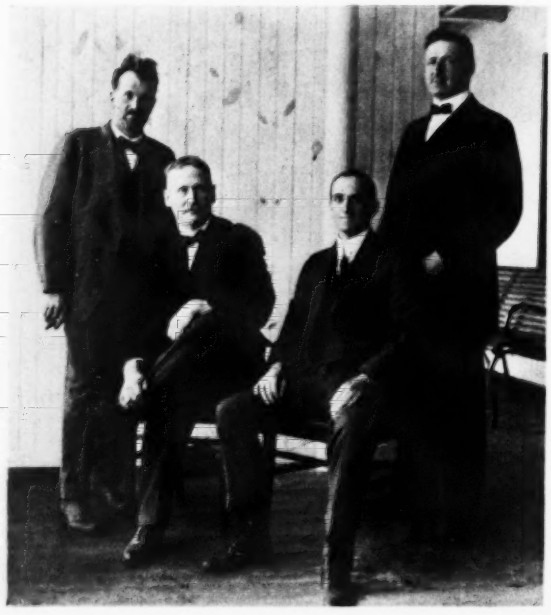
At the South Middlesex Master Plumbers' Outing.—From Left to Right: George H. Taylor, of Wakefield, Mass., President of the South Middlesex Association; John B. Feehan, of Lynn, President of the Massachusetts Association; and James H. Trow, of Salem, Recording and Financial Secretary of the Massachusetts Association.

Among the prominent members of the Massachusetts association who attended the outing were: John B. Feehan, president of the State Association of Master Plumbers; and James H. Trow, financial secretary. The leading men of the Middlesex association who were among the picnickers were: President George H. Taylor; Vice-President Jonas A. Larraway; and Secretary George T. Davidson. Brief, but eloquent addresses were delivered by these gentlemen during the dinner hour. The essence of their remarks was concerning the proceedings of the National Convention in Chicago, and telling the ladies that they should never be ashamed to have it known that their husbands are master plumbers, a just as great

The South Middlesex Master Plumbers and Their Families at Their Annual Outing at Bass Point, Nahant, Mass.

and necessary a profession as that of the doctor or the lawyer, etc.

The outing at the Point, was immensely enjoyed by all, even though Old Sol never showed his face during the affair. The secret of the success of the outing lay



At the South Middlesex Master Plumbers' Outing.—From Left to Right: Jonas A. Larraway, of Winchester; George H. Taylor, of Wakefield; Geo. T. Davidson, of Winchester; and Enoch C. Shaw, of Woburn, Treasurer of the South Middlesex Association.

in the congenial and social spirit which animated the picnickers, for the "glad to see you" greeting was to be heard on all sides.

## HAVERHILL MASTER PLUMBERS' FIRST ANNUAL OUTING.

Ideal weather conditions and an excellent program combined to make the first annual outing of the Haverhill (Mass.) Master Plumbers' Association, held at Centennial Grove, Essex, on August 11th, an event of rare enjoyment for half a hundred members of the organization and their guests who attended. The company left Haverhill by automobile at 8 o'clock in the morning and it was well into the evening before the last of the company returned home. Among the invited guests were James B. Feehan, of Lynn, president of the Massachusetts State Association; William Bradford, of Quincy, state vice-president, and James H. Trow, of Salem, who is secretary of the state association and of the Massachusetts North Shore Association. All made brief addresses following the dinner. About twenty-five salesmen also attended the outing as did Inspector D. X. Coakley, of Haverhill.

A feature of the athletic program was a base ball game between the plumbers and the salesmen, which was won by the latter, with a score of 6 to 5. Other sporting events with suitable prizes also were run off. The dinner was served at Lakecroft Inn.

The committee in charge of the affair consisted of C. M. Neily, C. A. Anderson, F. S. Mills, P. E. Elliott, J. E. Dugdale, M. I. Luce, J. J. Butler and William Watson.

## MASTER AND JOURNEYMAN PLUMBERS OF NEWARK, O., HOLD JOINT OUTING.

The Master and Journeyman Plumbers' associations, of Newark, O., held their annual outing at Central City, O., on Thursday, August 12th. About one hundred members, their wives, and families and friends, attended the affair.

One of the interesting features of the outing was the baseball game between the Pipe Benders and the Joint Wipers. "Bill" Leach's umpiring was one of the gratifying points of interest about the game. The line-up was as follows:

| | | |
|---|---|---|
| Perry Setblis | First base | J. Graff |
| J. Brown | Second base | J. Bigbee |
| Jack Adams | Third base | F. Sitten |
| H. Funk | S. S. | Beaber |
| F. McFarland | R. F. | John Evans |
| Bill Dougherty | L. F. | J. Dicken |
| Joe Pfeiffer | C. F. | T. Huggins |
| Bill Shannon | P. | "Dutch" Reinbolt |
| Andrew Lang | C. | Geo. Young |

The game, which kept the picnickers in a continual state of amusement, was won by the Joint Wipers, the score being 17 to 10. In commenting upon the merits of the various players, some of the spectators remarked that if Andy Lang had used a clothes basket instead of a glove he would have made some brilliant catches. After the game, luncheon was served, followed by pinochle parties, which were in evidence everywhere. The supply fraternity was represented by Ed Cassin and "Bill' Leach of the Standard Sanitary Mfg. Co., of Pittsburgh, Pa.

## SYRACUSE MASTER PLUMBERS' ANNUAL OUTING.

The Master Plumbers' Association of Syracuse, N. Y., held its annual outing again this year at Owasco Lake Park, Auburn, N. Y., July 29th being the date.

Three special cars carried the members, their wives and families to the park, making the start promptly at 9 a. m. All enjoyed the exhilarating ride through the beautiful Marcellus Valley. During the trip bananas and crackerjack were distributed to all with the exception of car No. 3, in charge of Copper John. Somehow or other Copper lost the batch of bananas entrusted to his tender care. However, upon reaching Skaneateles the mystery was cleared up.

After arriving at the park at 10:45 a. m. the outing committee, consisting of Messrs. August Schall, chairman; Walter Coling, Charles E. McCarthy, George Boysen and John Oswald, served the following: Ice cream and cones, raspberry and orange ices, coffee, lemonade, etc.

Following the dinner Gus Schall lined the boys and girls in a row and gave each one a toy balloon and a Zeppelin airship. Shortly afterwards the picnickers were all startled by the bombardment of the Zeppelins, nearly all exploding on the grounds.

Promptly at 2 p. m. the races were started, in which many contestants entered. Much merriment was created when the nail driving contest for the ladies was in progress. Each fair contestant was later given a hammer as a souvenir, the same being decorated with colored ribbons. And the women folks surely did some "knocking" amid much noise.

After the races all went to Island Park and enjoyed the merry-go-round, the miniature railroad, the roller coaster, etc.

The party returned in due season to partake of an ap-

petizing supper, after which all prepared to journey homeward. A delightful day was spent at the park, and all agreed that the outing was the "best ever."

## MASTER PLUMBERS OF FOX RIVER VALLEY ENJOY ANNUAL OUTING.

Wednesday, August 11th, was an ideal day. It also marked the date of the fourth annual picnic of the Fox River Valley Master Plumbers' Association in the badger state. Members and their wives and families came from Fond du Lac, Oshkosh, Neenah, Menasha, Appleton, Kaukauna, Depere and West Depere, Wis.

The entertainment committee lived up to the contract, omitting nothing that would add to the joyousness of the occasion. A full array of automobiles moved off in a gala procession, headed by a machine carrying Mayor Abrams, of Green Bay. A complete tour of the city was made, and all of the beautiful, as well as historic points of interest were shown the visitors. Following this the cars were headed in the direction of Bay View Beach, which is Green Bay's popular summer resort, where the outing folks disembarked and "started the ball rolling" for the day's pleasure.

Through the courtesy of the members of the Green Bay local a bountiful supply of tickets for the roller coaster was distributed gratis to the children, and not to be outclassed in generosity and good will, the representatives of the Murphy Supply Co., of Green Bay, proceeded to circulate tickets for bathing privileges, a feature of the outing which many took advantage of. An amusing phase of the water sports was a spirited game of baseball, played by the gentlemen in the bathing suits.

All day long a band with orchestra equipment furnished music for those who sought the pleasures of the dancing pavilion.

The entertainment committee, which covered itself with glory, was composed of the following gentlemen: A. L. Delforge, Joseph Thomas and Carl Hanson.

Persistent rumors had it that the ideal weather of the day was the direct result of a bribe "handed" the wiseacre who presides over the government weather bureau at Green Bay. It is reported that Uncle Sam's weather prophet was induced by the lure of gold to take a day off and go a-fishin', the members of the local association agreeing to look after the business during his absence. The master plumbers of Fox River Valley now point with pride to their ability to stop leaks.

E. N. Murphy and W. C. Noble, of the executive department of the Murphy Supply Co., frolicked about in the games and races during the day. Messrs. Finch and Forschel, of the sales department of the same concern, were much in evidence at the lemonade counter. A gathering of this kind without Frank Nolan, the popular representative of the U. S. Radiator Corporation, would not be complete, so Nolan was there all the day long.

## CANTON MASTER PLUMBERS' OUTING.

The annual outing of the Master Plumbers' Association of Canton, O., was held on Wednesday, August 11, at Turkeyfoot Lake. Forty members made the automobile trip to the lake, where the outing was held, the trip being made by way of Alliance and Ravenna in twelve machines, all belonging to members of the Association, which indicates sufficiently the prosperity of the Canton organization. A varied program of sports and games filled the day, with two large and enjoyable meals to add variety.

Fox River Valley Master Plumbers and Their Families at Their Annual Outing at Bay View Beach, near Green Bay, Wis.

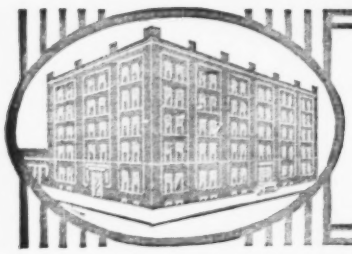
## MAHONING VALLEY PLUMBERS PREPARE FOR OUTING.

The fifth annual outing of the Mahoning Valley Master Plumbers' Association and of Local Union No. 87 of the Journeymen Plumbers of Ohio, will be held at Southern Park, Youngstown, O., on Saturday, August 28th. The outing committee, which has arranged an exceedingly attractive program of events for the day, is composed of the following gentlemen: T. C. Beede, C. F. Henry, Wm. Rowland, C. W. Wilson, F. W. Pfund, A. Schmutz, Harry Davis and Roy Edwards.

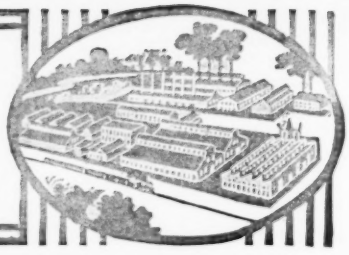
## MARYLAND PLUMBERS TO HOLD OUTING AUGUST 26TH.

According to official information, the annual outing of the Master Plumbers' Association of Maryland will be held on Thursday, August 26th, at Buedel Park, Middle River, near Baltimore. A meeting will be held in the morning at the Knights of Columbus Hall at 109 West Mulberry Street, Baltimore, from where the members will leave promptly at 12 o'clock for the park.

"Many a man in business can wait patiently while a factory is going up brick by brick—knowing that the bricks must be bought and laid first. But he cannot wait patiently while his reputation is being built up brick by brick through advertising. He wants to get returns on the first load of brick thrown on the vacant lot."—San Francisco Call.



# Among the Wholesalers and Manufacturers



## COMPANIES RECENTLY INCORPORATED.

The Portage Supply Co., of Akron, Ohio, has been incorporated with a capital of $10,000 to deal in plumbing and gas fitting specialties. The incorporators are: J. J. Brady, Thomas Brady, E. E. Brady and C. A. Barton.

The Adelman & Ehrlich Co., of Chicago, has been incorporated to manufacture heating specialties. The incorporators are: Charles G. Adelman, Charles H. Ehrlich and Lewis F. Jacobson.

The Davey Mfg. Co., of Detroit, Mich., has been incorporated with a capital of $2,500, to manufacture plumbing and heating specialties.

## MAKE ARRANGEMENTS FOR MANUFACTURING AND DISTRIBUTING.

The Oliver Schlemmer Co., of Cincinnati, O., has made arrangements to have the Crane Co., of Chicago, manufacture the O. S. distributors and circuit fittings, which are now used by steamfitters in all parts of the country, and carried in stock by many jobbers. The Oliver-Schlemmer Co., also has made arrangements to have the American Radiator Co. act as distributors of these fittings.

## HAS PURCHASED THE HUGHSON STEAM SPECIALTY CO.

The Illinois Engineering Co., of Chicago, has purchased the business of the Hughson Steam Specialty Co., also of Chicago, including the right to manufacture and sell the John Davis "Eclipse" steam specialties, which have for many years held a conspicuous place in the heating field. The record of the Illinois Engineering Co. is a guarantee that the high standard of the "Eclipse" specialties will be maintained. H. H. Hughson, president of the Hughson company, has accepted the position as manager of the Illinois Engineering Co.'s specialty department, and will thus continue to serve users of "Eclipse" specialties.

At the Summer Meeting of the Central Supply Association.—From Left to Right: O. P. Benjamin, Vice-President and General Manager of the Detroit Valve & Fittings Co., Detroit; James Weir, Vice-President of the Weir & Craig Mfg. Co., Chicago; and J. R. Steneck, Sales Manager of the Illinois Malleable Iron Co., Chicago.

## JAS. BARRETT MFG. CO. TO MOVE.

The James Barrett Manufacturing Co., who for nearly a quarter of a century has been located at 48 Pearl Street, Boston, is soon to move into new quarters at 115-121 Pearl Street. Here the company will occupy the entire building, doing away with the necessity for outside storage rooms required in the past because of cramped quarters. The show rooms on the street floor will be particularly attractive, according to plans, which are being prepared.

## TRENTON POTTERIES CO.'S OUTING.

The Trenton Potteries Company, of Trenton, N. J., has made its second successful attempt at entertaining its employees and friends in annual outing. Saturday, August 14th, was the date, and as last year the spacious groves and track of the Inter-State Fair Grounds were utilized for the purpose.

Nearly twenty-five hundred invaded the grounds and the entertaining and feeding of this army, as accomplished by the outing officials, was a revelation in efficient management. Each member of the party was supplied with a string of tickets which could be redeemed for luncheon, fruits, soft drinks, cigars and ice cream, and souvenirs were distributed at the gate. The luncheons were neatly done up in card board boxes which the merrymakers carried off to convenient tables in the grove.

At two o'clock the athletic events, the leading features of the day, were put under way. The large track with its

At Trenton Potteries Co's. Outing: A. King Aitkin, Advertising Manager; J. A. Campbell, President and General Manager; and W. J. Bapst, the Company's New York Representative.

reviewing grandstand was here put to use. While the games were in progress a vaudeville entertainment on the stage in view of the grandstand was enacted. This was headed by the "Enterprise Surprise," staged by a body of acrobats from the company's Enterprise plant. Arrayed in white uniforms, with their own band in the van, they paraded down the track and then went through

In the Judges' Stand at the Trenton Potteries Co.'s Outing.

acrobatic and vocal stunts for the entertainment of the spectators.

The athletic program included twenty-four events on track and field.

The inter-factory relay race for the silver cup trophy this year went to the Delaware Pottery.

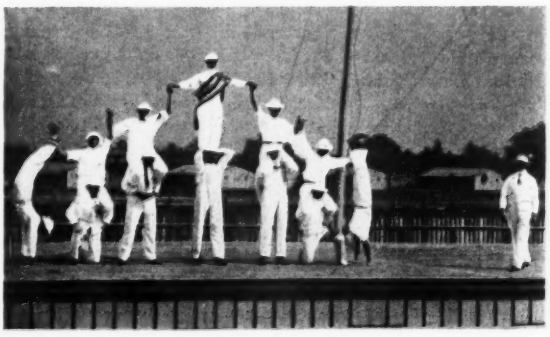
The hundred yard specialty for salesmen was a notable event. Billy Bapst reached the finish line first by the simple expedient of sticking right to the line through the entire performance. The prize went to F. Allen, of the New Jersey territory. J. J. Donovan, of Boston, won the distinction of ambling up the stretch last.

Then there was a 100-yard dash, open event; a 100-yard dash for novices, standing broad jump, girls' 50-yard race, running high jump, 50-yard runs for the kiddies, a fat men's race, a half mile run, a quarter mile for novices, 220 yards open, a sack race, old men's race, a one mile walk, girls' egg and spoon race, potato race, girls' baseball throw, three-legged race and a tug of war.

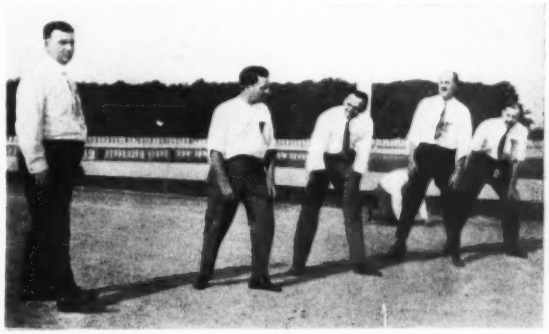
The popular girls' voting contest, in which three prizes were offered, went to Miss Alice Shannon, first; Miss Julia Leahy, second, and Miss Estelle Smith, third.

Six o'clock saw the completion of the athletic program, when the prizes were distributed by J. A. Campbell, president and general manager of the company, and the merry-makers once more retired to the grove, where dancing was continued in the open pavilion until dark.

The outing was pronounced one of the biggest successes of the season in Trenton. That the company's committee on arrangements eclipsed their first effort was a foregone conclusion before the day was very far spent. From morning till dark there was not a dull moment. The events of the day crowded by in quick succession augmenting the jolly holiday spirit which filled every one from the start.



The Enterprise Pottery Acrobatic Team at the Outing of the Trenton Potteries Co.



The Line-Up for the Salesmen's Race at the Trenton Potteries Co's. Outing.—From left to right: J. J. Donovan, J. N. Kise, E. S. Aitkin, W. G. Titus and B. W. Weber.

In the grand stand box and field were: J. A. Campbell, president and general manager of the company; J. C. Brodhead, of the board of directors; Chas. E. Lawton, secretary-treasurer; H. F. Whitehead, assistant secretary; Alex. K. Young, general superintendent; E. S. Aitkin, sales manager, and A. King Aitkin, advertising manager.

The salesmen present were: W. J. Bapst, New York; W. G. Titus, New England; J. J. Donovan, Boston; B. W. Weber, Pennsylvania; J. N. Kise, Southern States; F. Allen, New Jersey, and G. G. Dyer, Middle West.

## WINDOW DISPLAYS AS A FACTOR IN TRADE EXTENSION.

Many of the buildings occupied by retail stores in Ottawa, Canada, were constructed before the value of windows for display purposes was appreciated, but the fronts of these building have been or are being rebuilt along up-to-date lines, writes U. S. Consul O. Gaylord Marsh, of that city. There are several modern blocks constructed with large, plain, utility windows. It may therefore be said that practically all Ottawa retail stores of consequence have window facilities for artistic displays, and that the possibilities of attracting trade through show window advertising are quite apparent to the retail merchants of this city.

The science and art of window dressing have not been developed here to the same extent as in the larger cities of the United States. Some of the stores employ window dressers and make very favorable displays of their goods; others appear to depend upon a favorable interior display, improvising window exhibits that are frequently inartistic and too often are allowed to remain for long periods without change. One misses the artistic settings of time, place, season, action, etc., of such pleasing frequency in the cities of the United States.

It is noticeable that American goods, which appear to a gratifying extent in nearly all windows, are too often not displayed in the most favorable manner. This would seem to point a way for furthering American trade in the Dominion: Manufacturers of the United States could send expert window dressers to arrange displays of their goods or they could supply local firms with illustrated instructions for window designs.

# Personal Mention

One dewy, fragrant summer morning within recent weeks, just as old Sol was squinting golden rays on the eastern horizon, a lone son of Adam was seen cavorting to and fro over the spacious golf links of a suburban country club. Ever and anon the spry and ambitious old boy would wax wrothy and forthwith swat the inoffensive little ball a mighty swat, dispatching it on a

E. W. Sanborn, Sales Manager of the Chicago Office of the Lavigne Mfg. Co., Detroit, Mich.

steeple-chase in yonder clouds. A sleuth from the club house, employed to shadow players from hole to hole to ascertain whether they replaced broken turf, was "piperizing" him from behind a big hazard. Through a powerful field glass the crafty sleuth did gaze. Suddenly he dropped the glass. "Ye gods!" he cried. "Why, it's Sandy, and here I've been thinking it was Chick Evans trespassing on these links!" The sleuth was right. It was indeed Sandy, otherwise known as E. W. Sanborn, the hustling and popular western salesmanager of the Chicago office of the Lavigne Mfg. Co., makers of valves, Detroit, Mich. The sleuth dashed forth to greet E. W. S. "Fine work, fine work," observed the sleuth; "splendid driving." "Here," replied Sanborn, reaching down into his golf bag and drawing out a box, "here, old man," he insisted, "have a 'Sandy' Special."

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Theodore Ahrens, president of the Standard Sanitary Mfg. Co., passed through Chicago this week on his return from a trip to Honolulu.

J. R. Evans of the Union Sanitary Mfg. Co. of Noblesville, Ind., spent a few days in Chicago this week en route to Michigan, where he will spend his vacation.

Joseph Arth, Sr., president of the American Brass Mfg. Co., of Cleveland, O., is spending his vacation touring the Eastern states. He is accompanied by his wife and son.

In last week's issue of "Domestic Engineering,' containing the story of the August tournament of the Western Trade Golf Association, at Westward Ho Golf Club, it was stated erroneously that the third flight and prize of six silver mounted ramekins were won by Paul Blatchford. This flight and prize were won by Eugene Buehler, secretary and treasurer of Davies Supply Co., of Chicago, and we hasten to make this correction.

Alex Pierce, vice-president of the N. O. Nelson Mfg. Co., of St. Louis, arrived in Chicago this week from Northern Michigan with a prize string of bass which he claimed to have caught himself. His contentions were supported by photographs and affidavits which were referred to a committee of three, composed of "Boots" Little, Lew Jenks and a truthful fisherman. After due deliberation the majority report favored Mr. Pierce, after which he gave a dinner to fifteen friends at the Stratford in celebration of the event.

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## CALENDARS FOR THE HEATING TRADE.

Heating contractors who realize the advertising value of a good calendar will appreciate the "Gilt Edge" calendars of 1916, which are now being offered to the trade. These calendars bearing the dealer's advertisement are being furnished to the heating trade only, at a cost of less than one-third their real value. Both of the subjects are reproductions in actual colors from original paintings by American painters and the accompanying cut shows the style of one of the subjects, "Close of an Autumn Day," from a painting by Geo. Howell Gay; the other subject being a reproduction of "News of Peace—1865," by Clyde O. DeLand. The "Gay" subject is 5 inches by 20½ inches and the "DeLand" subject is 11 inches by 14 inches, and both are mounted with a double DeLuxe mount with a silk cord hanger and tie. They are very artistic and sure to please both heating contractors and their customers. If desired, a selling and advertising plan is furnished free in an effort to assist the contractor in obtaining the best results from his calendar distribution. This offer is a part of the Gilt Edge co-operative sales campaign, organized by R. J. Schwab & Sons Co., 283 Clinton Street, Milwaukee, Wis., and interested parties can obtain particulars on application.

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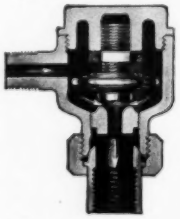
## THE MARSH NO. 3 THERMODISK AIR LINE VALVE.

The accompanying illustration shows a sectional view of the Marsh No. 3 Thermodisk air line valve, recently placed on the market by Jas. P. Marsh & Co., of 118-124 South Clinton Street, Chicago. This valve is entirely of metal, including the thermostatic disk, which is constructed of phosphor bronze, spun right directly on to the valve at top and bottom, making an absolutely tight container for fluid and gas. The disk is so constructed as to eliminate the slightest possibility of rupture from alternate expansion and contraction, the expansion being provided for in the corrugations, the edges being at all times free from excessive stress. The valve is adapted for both old and new plants and any pump or mechanical apparatus used to



create a vacuum on the return air line. It operates automatically with or without mechanical suction on return air line. The valve opens for air and closes for steam by means of the contraction and expansion of the prosphor bronze thermostatic disk produced by the condensation and vaporization of volatile fluids contained therein. When the valve is cold it is open. The instant steam reaches the valve, the fluid vaporizes and the gases expand the self-contained disk valve to its seat, forming an absolutely tight joint and keeping steam out of the air line. When air, as given off by condensation of steam in radiator or coil, reaches the sensitive fluid gases, always distinguishing between air and steam, the gases condense, the disk contracts and air is passsed out of the system. This operation is repeated just as fast as air is formed and with the operation of the plant. An important detail is that this valve in centers is interchangeable with the Marsh Original Paul air valve, and it can be applied promptly without loss of time and cost of extra piping to older installations with that valve. Interested parties can obtain full particulars from the above-named manufacturers upon request, mentioning "Domestic Engineering."

### Steel and Iron.

Orders placed in this country by Russia and France, the former for rails and the latter for cars, formed the chief feature in the steel business last week. Russia closed for a total rail tonnage of 140,000 tons and it is understood that further orders for 30,000 tons will shortly be consummated. France is reported to have placed orders for 5,835 passenger and freight cars, most of which will be built by the Pressed Steel Car Co. Domestic rail business was also active, the largest order being 17,000 tons for the Baltimore & Ohio R. R. Co. Other railroads placed orders aggregating 14,000 tons. Rail buying by domestic roads is taken to point to a general resumption of buying operation to replace old equipment. Car orders were brisker during the week also. The number of inquiries that are in the market, combined with the business placed during the week, has given equipment builders a marked feeling of optimism.

Undoubtedly the pig iron market is in full control of the producer. Early last week a Buffalo furnace put out a quotation of $14.50 for first quarter 1916 business as a test of the market. The response of consumers was so quick and in such volume that the quotation was withdrawn. The furnaces are proceeding slowly and waiting until the foundries begin to make the price before they will dispose of next year's production. Speculative activity has about cleaned up all the stocks held by furnaces. It is estimated that speculators hold 350,000 tons and do not appear anxious to dispose of stocks at the advanced prices. Sales of basic iron have been very heavy in the Central West with a number of large tonnages sought for next year. In the South pig iron made a marked advance during the week, $11 being asked for spot, $11.25 for last quarter and $12.50 for 1916 delivery. The Tennessee Co. is the only interest quoting for next year and it is understood that a good amount of business was placed at that figure. Quotations are as follows:

| | |
|---|---|
| No. 2X Northern Foundry, New York | $15.25 to $15.50 |
| No. 2X Northern Foundry, Buffalo | 13.50 to 14.00 |
| No. 2 Southern Foundry, Birmingham | 10.75 to 11.00 |
| No. 2 Southern Foundry, Cincinnati | 13.65 to 13.90 |
| No. 2 Southern Ohio Coke, Cincinnati | 13.75 to 14.00 |
| No. 2 Northern Foundry, Chicago | 14.25 to 14.50 |

### Copper.

The failure of the anticipated renewal in the demand for copper to materialize during the past week resulted in a decline of 1 cent in the price with the market closing weak. Electrolytic copper was quoted at the close of the week at 17 cents. Production of copper is now on a large scale. The July reports now coming in indicate that the large companies turned out more last month than in any previous month of this year. August production is expected to exceed July. Buying by the Allies came to a sudden stop, although the producers secured orders that will take care of a good part of their future output, in fact, the production for the next four or five months, but buying by domestic consumers has ceased with little possibility of a renewal in the near future.

### Tin.

Greater activity in tin future was the feature of the market during the past week. Consumers entered the market for August and September shipments from the Straits and before the buying operations came to a close had taken about 800 tons. The comparatively low price of tin may have had something to do with the buying of nearby positions. It is felt by importers that greater American consumption is the dominant factor. The July statistics were a factor in causing consumers to enter the market, the figures being bullish, showing larger American requirements and shipments in sight about sufficient to cover normal takings by consumers. Arrivals since the first of August total 1,825 tons while stocks afloat for the United States amount to 6,020 tons. Spot tin is held at 34½ cents.

### Lead.

Lead was inactive and prices fell steadily from 5 cents per pound to 4½ cents, New York, and 4.42½ cents, East St. Louis. With the reduction in the price of the American Smelting & Refining Co. to 5 cents on Saturday fresh in the minds of sellers, the announcements of cuts to 4.75 on Monday and 4½ cents on Tuesday demoralize the market for a time. The general opinion is that overproduction has caused the recent decline from 7 cents a pound, reached on June 12, after a steady advance started in January, when lead sold at 3.70 cents.

### Spelter.

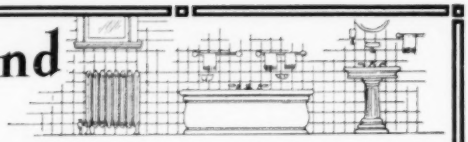
Efforts of producers to unload production on the market caused spelter to pass through a sensational week. The market opened at 15 cents, New York, and 14¾ cents, East St. Louis, and steadily declined until 11¾ cents was the quotation at the close of the week. With both war business and domestic trade absent, the market was extremely dull and holders are looking for further decline in prices.

### Old Metals.

New York dealers' buying prices are all nominal as follows:

| | | |
|---|---|---|
| Strictly crucible copper | $14.00 to | $14.50 |
| Light copper | 11.50 | 12.00 |
| Uncrucibled heavy copper | 13.75 | 14.00 |
| Heavy brass | 9.00 | 9.50 |
| Cocks and faucets | 9.50 | 10.00 |
| Light brass | 7.00 | 7.25 |
| Solder joints | 7.00 | 7.25 |
| Heavy lead | 3.50 | 3.60 |
| Tea lead, nominal | 3.25 | 3.40 |

# Among the Plumbing and Heating Contractors



## Illinois

### Chicago and Vicinity.

Building operations in and about Chicago are rapidly resuming their old time spirit. With the strike and lockouts finally disposed of conditions are becoming brisk and increasingly encouraging. A considerable percentage of apartment buildings are being planned or in course of construction in the various sections of the city, while the number of dwellings and more pretentious residences are also multiplying. The plumbing and heating trades show far less disposition to pessimistic observations than was the case a few months ago. Many of the local plumbers and fitters have secured substantial and profitable contracts within recent weeks.

E. J. Claffy & Co., of 12 Illinois Street, have recently been awarded the contract for the installation of the hot water heating system in a modern two-story, attic and basement residence to be built at Sheridan Place, near Sheridan Road.

The Phillips-Getschow Co., of 130 West Kinzie Street, will install the steam heating system in a two-wing addition to the Scottish Old Peoples Home, at Riverside, Ill. The plumbing will be installed by W. J. Taylor, of Riverside.

The Hanley-Casey Co., of 410 West Ohio Street, has been awarded the contract for installing the steam heating and plumbing systems in the new two-story and basement high school at Morgan Park, Ill.

William A. Pope, of 26 North Jefferson Street, will install the heating system in a two-story, attic and basement residence to be erected at Davis Street and Wesley Avenue, Evanston.

### A New Public Comfort Station.

One of the attractive comfort stations in the smaller parks of Chicago, which was recently completed, is shown in the accompanying picture. This station is located in Washington Square, at Clark Street and Walton Place. The station is approximately 18x30 feet, with one side for women and the other for men. In the latter compartment is one lavatory, two enamel-ware urinals and one closet. In the women's section are two lavatories, mirrors, etc., and two closets. Cement is used for floor material in both instances. Pressed brick of an attractive color is used in the exterior construction. The construction of this comfort station has filled a long felt need in this section of the city, where many hundreds of people take a stroll in this park every day.

New Public Comfort Stations in Washington Square, Chicago.

Chas. Mundt, of 2202 Milwaukee Avenue, has recently been awarded the contract for installing the plumbing system in a two-story and basement apartment building to be erected at a cost of $6,500 at 2874-2878 Elston Avenue. The steam heating system will be installed by the Glennon-Bielke Co., of 546 West Lake Street. Both the plumbing and heating work will be fairly under way within the next two weeks.

Among the many women present at the recent national convention of the master plumbers at Chicago, perhaps one of the most interesting was Mrs. R. H. Phillips of Detroit, Mich., who has been given credit for furnishing the model for the first Ford automobile, some twenty-five years ago. Henry Ford, it is said, borrowed a baby carriage owned by Mrs. Phillips, and from it he is reputed to have modeled his first automobile. Mrs. Phillips is shown in the center of the accompanying picture. To the left of her is Mrs. W. S. Loftis of Atlanta, Ga., and to the right is Mrs. F. E. Pearson of Chicago.

Mrs. W. S. Loftis, of Atlanta, Ga.; Mrs. R. H. Phillips, of Detroit, Mich., and Mrs. Frank E. Pearson, of Chicago.—From "Domestic Engineering" Photo, Taken at the Chicago Convention of the National Association of Master Plumbers.

## Michigan

### Detroit and Vicinity.

Charles Simons, for a number of years secretary of the Detroit Master Plumbers' Association, has resigned from that position.

A. W. Schults, of Detroit, has secured the contract for heating, ventilating and plumbing the new Montclair school, to be erected on Montclair and Meadowbrook Streets. The contract amounts to $20,709.

The Cook Plumbing & Heating Co., of Detroit, has been incorporated with a capital of $1,000, to conduct a

plumbing and heating business. The principal stockholders are Gordon and Burweck Cook.

The new heating plant in the Central High School, Detroit, will be installed by Ernst Bros., whose bid was $13,431.

Allen Kopatz, a heating and plumbing contractor of Detroit, has filed a petition in bankruptcy. His liabilities are scheduled at $5,350 and his assets at $3,391.

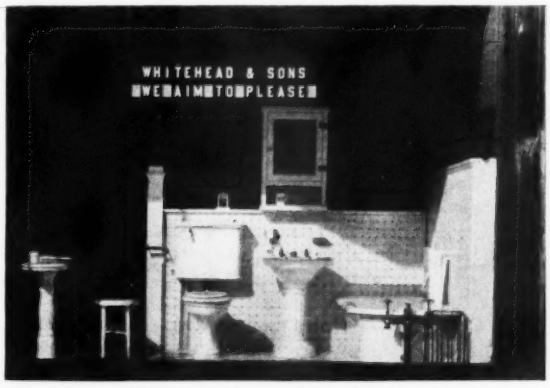
In connection with the new Sigsbee School at Grand Rapids, the heating contract was awarded to the Phoenix Sprinkler & Heating Co., of that city, its bid being $3,013.

The Pulte Plumbing & Heating Co., of Grand Rapids, has been awarded the plumbing contract in connection with the new South high school on its bid of $3,995.

The Ann Arbor Master Plumbers' Association held its annual picnic at Island Lake on Sunday, July 25th. The outing was largely attended and a basket lunch, athletic games and boating were features of the day.

# Indiana

Whitehead & Sons are successful Hoosier plumbers, who know the trade-pulling power of attractive window displays. In the show window of their shop at 610 Broadway Street, Logansport, Ind., they are proving that a




Window Display of Whitehead & Sons, at 610 Broadway, Logansport, Ind.

good window display is a big asset in business. The accompanying picture depicts the commendable appearance of their window display at their new place of business in the city named.

The Leige Heating & Ventilating Co., of Auburn, has the heating and plumbing contracts for the new addition to the high school at Avilla, Ind.

O. W. Stengel, of Rochester, has the heating and O. M. Roberts, of Culver, the plumbing for the new library building at Culver.

Wallen & Callon, of Indianapolis, were the successful bidders for remodeling the power house and equipment at Miami University, Oxford, O.

G. M. Farry, of Flora, has secured the plumbing contract for the new high school building at Flora.

At a recent meeting of the New Albany, Ind., School Board, contracts were awarded for plumbing, heating and ventilating on a new school building to be erected at a cost of about $50,000. The heating and ventilating contract went to W. H. Johnson & Son Co., of Indianapolis, Ind., on a bid of $5,199. S. C. Durbin, of New Albany, was awarded the plumbing contract on a bid of $3,575.

Geo. Brattain has let the plumbing contract for his new two and one-half-story residence at Broad Ripple to the Vestal Plumbing Co., of Indianapolis.

Cotton-Wiebke Co., of Indianapolis, is doing the plumbing in the new addition to School No. 8 in that city.

### Do You Know Where He Is?

Many complaints have recently reached "Domestic Engineering" from subscribers in Indiana stating that they have paid subscriptions to A. Metzger, but have not been properly credited. As we have not been able to get in touch with Mr. Metzger we are compelled to ask our subscribers to stop paying subscriptions to him, and will appreciate any information as to his whereabouts.

# Ohio

### Cincinnati and Vicinity.

Garber & Woodward, of Cincinnati, the architects in charge of the new Hyde Park High School, will shortly post announcements regarding the receiving of bids on the first group of buildings, which will be held open until September 15th. The remainder of the work will not be let until some date in October. As announced some time ago, this will be one of the biggest jobs let this year in Cincinnati, standing next only to the court house, and there will probably be keen competition for the work.

J. J. Dowd, of Cincinnati, has received the plumbing contract on a large residence to be built for R. A. Colter near the Park Avenue entrance to Eden Park, Stegner & Hughes being the architects.

Architects Samuel Hannaford & Sons have let to Henry Niemes, 4112 Hamilton Avenue, Cincinnati, the plumbing contract for the $12,000 art gallery to be built for the Methodist Home for the Aged.

City Plumbing Inspector Gustav Schelb, of Sandusky, Ohio, with the assured backing of the city board of health, has announced his intention of putting through a campaign for the betterment of plumbing and general sanitary conditions in the tenement properties in that city, which, according to the records of the board, are far from being up to date. The inspector has reported bad plumbing conditions in half a dozen houses, and notices will be issued accordingly to their owners.

The Cincinnati Board of Education, through C. W. Handman, business manager, will receive bids until 12 o'clock noon of September 12 for a considerable amount of repair work on the Lincoln and Washburn public schools, respectively, including in each case plumbing and gas-fitting. Separate bids may be submitted on these and other branches of the work by contractors, if desired. Plans and specifications for the work are on file with the Board of Education at 511 West Court Street, Cincinnati.

Prospects are good for the construction of at least two new hotels in southern Ohio, which means some profitable work for the plumbing trade, inasmuch as both will be entirely modern in every respect. One is to be built at Ironton, O., by a company which has been organized for that purpose, and as the plans and specifications have been virtually completed it is expected that bids will be called for very shortly. The other is planned for Dayton, O. The structure will be seven stories in height.

The Columbus Heating & Ventilating Co. will handle the heating and ventilating work involved in the construction of the new high school at Vincent, O.

Recently-announced changes in the rating rules applicable to the operation of the workmen's compensation

laws of Ohio will make the act much more satisfactory to employers, it is believed, by making it less burdensome in certain cases. For instance, the new rules, which were formulated by the Ohio Industrial Commission, eliminate two charges of $500 and $1,000, respectively, made against employers in whose service a death or an injury resulting in permanent total disability occurred. These charges were intended for a sort of penalty, designed to enforce such care as to reduce the number of deaths and serious injuries, but it was felt that such charges were unfair, and imposed an undue burden on employers. The law provides under the new rules, that no increase of more than 24 per cent in any six months shall be made, regardless of the experience of the particular industry in that period. Inasmuch as rates for the various industries have heretofore been fixed with reference to the experience in each industry for each period of six months, instances have occurred where through a single accident, causing a number of injuries, an industry has been heavily burdened; but this will not be possible hereafter. A ruling of the Ohio Insurance Commissioner, Frank Taggart, handed down after a long hearing of a complaint presented by several liability insurance companies, is to the effect that the liability companies may insure employers within the contemplation of the workmen's compensation act, under certain circumstances; and one of the classes of employers who may thus be insured consists of those who employ less than five men, and with whom, in consequence, the application of the compensation act is optional. There are probably more plumbers under this class than any other one line of employers, and the ability to secure protection by liability insurance, even where the act has been accepted, will prove popular with the plumbers, it is believed, if the Industrial Commission acquiesces in the Insurance Commissioner's ruling. This, however, is by no means certain, as the chairman of the Commission has indicated dissatisfaction with the ruling and disagreement with its accuracy as a construction of the compensation act.

# Connecticut

Arrangements are being completed for the annual outing of the Connecticut Master Plumbers' Association, to be held the last week in August at Savin Rock. It will be an all day affair, and indications point to a large and enthusiastic gathering.

The Bridgeport Master Plumbers' Association is making an effort to get all of the master plumbers of the city on its membership roll. Four new applications were presented at the August meeting.

James M. Gill, who formerly conducted a plumbing business at Waterbury, has filed petition in bankruptcy.

Joseph Sondro, Jr., of Groton, has moved his plumbing business to 5 Baker Avenue in that town.

James T. Gannon, of Wallingford, formerly president of the plumbing firm of Leonard, Gannon & Leonard Co., has opened a plumbing, heating and ventilating establishment of his own at 129 South Street.

The school board of Waterbury has authorized the schoolhouse sub-committee to secure bids for the installation of new heating systems in the Welton and Porter schoolhouses and to award the contracts for the work as they may deem to the best interests of the city.

Work has been started at Old Lyme on a new plumbing shop for Allan Spier. It will be located on Main Street, on property recently acquired by Mr. Spier.

# Massachusetts

### Boston and Vicinity.

Mayor Curley, of Boston, has confirmed the appointment of Patrick J. Osborne as an inspector of plumbing in the school house department and he has already entered upon his duties. The mayor also has given his official sanction to the awarding to J. P. Dwyer Co. of a contract for heating the superintendent's quarters at the Boston City Hospital for $1,697. There were but two other bidders, J. J. Hurley & Co., at $1,895, and T. A. Ridder & Co., $1,990.

William N. McKenna, head of the plumbing firm of William N. McKenna Co., of Chestnut Street, Boston, who was recently made first lieutenant of the Ancient and Honorable Artillery Company of Boston, has been in Richmond, Va., making arrangements for the entertainment of the organization on its annual outing later in the season.

Huey Bros. Co., of Boston, was the lowest of several bidders for the heating and ventilating of a proposed new high school at Dedham and probably will receive the contract. The company's bid was $15,334.

### Other Cities in the State.

The city of Holyoke has voted $7,000 for the building of an underground public comfort station, plans for which are now being considered. The station will be erected on the city hall property and probably will consist of a one-story building and basement. As soon as the plans are definitely decided upon, contracts will be placed.

A. J. Beaumire & Co., of Springfield, has been awarded the contract for plumbing at $2,898, and George H. McLean Co., at $2,050 the contract for heating and ventilating in connection with alterations to be made at the Winchester Square fire station, in that city.

Morrisey Bros. Co. is the name of a new plumbing concern of Springfield, which has recently been incorporated under the Massachusetts laws. James R. Morrisey is president and treasurer, Joanna G. Morrisey and Bridget Morrisey, directors.

The contract for a new heating system to be installed in the South Protestant Methodist Church at New Bedford has been awarded to Thomas Knowles.

Charles D. Hawkes, of Lee, has sold his plumbing business in that town to I. Ives Smith. The new proprietor is the son of the late Chauncey W. Smith who conducted this establishment for many years. The younger Smith has been engaged in the plumbing business for more than 20 years and is a skilled workman. Mr. Hawkes will remove to Detroit.

William L. Bull and Walter E. Bull, sons of the late William B. Bull, of Lenox, have taken over the plumbing business of their father, which will hereafter be conducted under the firm name of William B. Bull's Sons. The business has been established for thirty years, and for ten years past the sons have had an interest in it.

John Gustafson, of 5 Lincoln Street, Worcester, has been awarded the contract to install the plumbing in connection with the swimming pool and gymnasium of the Worcester Academy on Province Street. Consideration $3,500.

Bids for an eight-room two-story brick addition to the Midland Street schoolhouse at Worcester have been received at the office of the superintendnt of public buildings. John J. McGrail, at $3,265, was the lowest bidder for the plumbing, and M. J. Maher was low among the heating

firms, at $3,940. The contracts will be awarded at an early date.

School officials, of Rockland, have awarded a contract for remodeling the plumbing in the School Street school building to Hall & Torrey.

John B. McCabe, of 107 Haverhill Street, Lawrence, has been awarded the plumbing and heating contracts covering a three-family apartment on Berkeley Street. Consideration $1,500.

Dooley & Butterworth, of 282 Park Street, Lawrence, are installing the plumbing in the Tarbox grammar school in that city.

John F. McCarthy, of 6 Lawrence Street, Lawrence, has secured the contract for installing plumbing and heating in the new three-story brick Oliver central grammar school. Consideration $30,000.

# New Hampshire

Lee Bros., of Concord, have the contract for plumbing, heating and gas fitting in an addition to the postoffice building in that city.

T. E. Ward, of Hanover, has the contract for heating a new building being constructed at White River Junction, Vt., for the First National Bank of that place.

Resolutions favoring compulsory licensing of plumbers by the State were adopted at a recent annual meeting of the State Federation of Labor, held at Franklin.

# Kentucky

### Louisville and Vicinity.

For the first time in several months a gain has been shown in building operations. During July of this year the total building permits issued in Louisville amounted to 212 and had an estimated value of $540,740, against 250 permits for 1914 which had an estimated value of $483,740. The month's total was considerably swelled by the $155,000 permit for the Y. W. C. A. Building and the new Speed Building to cost about $160,000.

Saturday, August 7th, was one of the lightest days so far as new work is concerned of any day in some time. On this day only one building permit was taken out, and that for a one-story frame residence, while not a single plumbing permit was issued. However, the democratic primary was held on that day, and naturally things were quiet around the city hall.

L. W. Johanboeke, of the Ahrens & Ott Manufacturing Co., left Louisville last week for Nashville, Tenn., to look after things at that office during the illness of George Crawford, the Nashville manager, and J. W. Simmons, the chief clerk. Mr. Crawford was recently operated upon for appendicitis, and is getting along nicely. Mr. Simmons was stricken with malarial fever. Mr. Johanboeke will return to Louisville as soon as the two men recover.

Charles J. Lynn, 817 East Market Street, Louisville, recently took out a plumbing permit for the installation of four closets and four sinks at the cigar factory of Eitel & Cassebohm. A portion of the cigar plant was recently blown down in a storm which struck Louisville.

Jacob Isaacs, 101 East College Street, Louisville, recently secured a nice contract for work on the handsome addition to the residence of Mrs. J. B. Speed, at 505 West Ormsby Avenue. The installations will include four closets, four lavatories, two sinks and one tub.

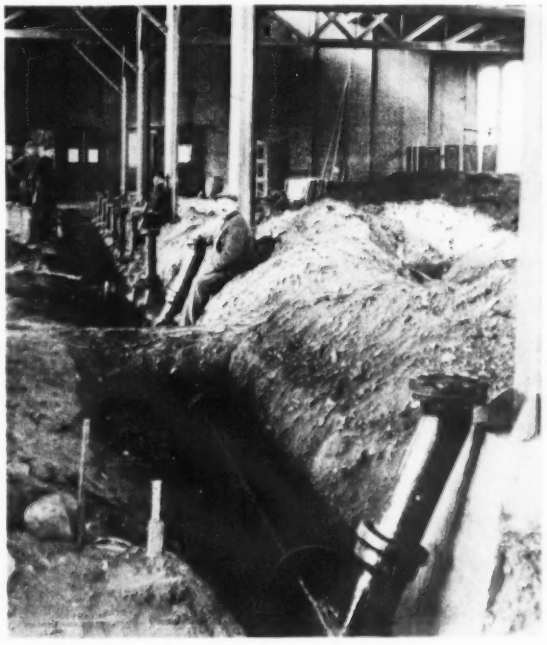
H. J. Hack, 711 East Broadway, Louisville, was recently awarded a contract by W. Barker for the installation of seven spouts and three pools in a building at 754 South Eighteenth Street.

# Pennsylvania

### Philadelphia and Vicinity.

C. S. McCarthy, of Wayne Avenue, Philadelphia, has been awarded the plumbing and heating contract for a new department store at 4200 Germantown Avenue.

I. S. Shreve, one of the busy master plumbers of Tacony, Pa., is installing the new drainage system in the



New Drainage System being Installed by I. S. Shreve, of Tacony, Pa.

Helwig Silk Mills at Wissinoming, Pa. The accompanying photo shows the installation in process of construction.

Hoben & Doyle, of Philadelphia, have been awarded the contract for installing the plumbing and heating in the new building, which is being erected by the "Bulletin," a newspaper of this city.

B. Landau, 1216 North Fourth Street, has the contract to install plumbing in ten new houses which are being erected in Lawndale, Pa.

J. Ricketts & Bro., of Olney, Pa., will install the plumbing system in twenty houses which are in course of construction at Tacony.

J. J. Sites, Jr., of 2912 Fletcher Street, Philadelphia, has been awarded the contract for installing the draining systems in a number of dwellings at 29th and Clementine Streets.

H. Corson Williams, of 3146 Frankford Avenue, Philadelphia, is installing the plumbing and heating systems in sixty-eight dwellings which are being erected at H and Tioga Streets. He also has secured the contract for the

plumbing and heating installations in one hundred small residences at Ditman and Margarette Streets in Frankford, for James Murphy.

F. F. Fanus, of 6411 Woodland Avenue, Philadelphia, is busily engaged in the installation of plumbing in one hundred houses at Paschall, Sixtieth Street and Woodland Avenue.

Harry Blackburn, of 2 South Forty-second Street, Philadelphia, has recently opened a branch shop at 5463 Thomas Avenue. He reports brisk business conditions in his territory.

B. Jacobson, who conducts a shop at Eighth and Tasker Streets, Philadelphia, is installing the plumbing and heating in fifty-two stores at Front and Ritmer Streets; also the plumbing systems in seventy-seven stores and dwellings at Frankford Avenue and Venango Streets. Mr. Jacobson has likewise been awarded the contract for the installation of plumbing in sixty-eight stores and dwellings at Westmoreland and American Streets.

C. Bieling, of Philadelphia, has the contract for underdraining quite a number of houses and he is installing new plumbing in ten of them.

# California

### San Francisco and Vicinity.

While there still continues to be a dearth of large building in San Francisco, there is a decided movement in the way of residence construction here and in some of the suburban and neighboring cities and towns. Cheaper residence and cheaper materials, which have come with the slow business of the past year or two are being utilized to certain extent by prospective home builders; and local plumbing supply houses find that there is a growing demand for plumbing supplies and fixtures for residence work. In the city there is a certain amount of business building going on in the down town section as a result of easier financial conditions, which enable property owners to build on property that has been idle even since the great fire of April, 1906.

The California State Advisory Board has ordered a call for bids on several state building jobs throughout the state, the total running up to about $200,000. Some of the larger items include: A new cell house at Folsom prison, to cost $57,000; cottages for the Southern California Hospital, at Patton, to cost $47,000; new boilers and electric wiring for the State Hospital, at Stockton, to cost $17,500; gymnasium and repairs in the Home of the Adult Blind, at Oakland, to cost $2,500; repairing the San Diego Normal School, at a cost of $14,000; temporary buildings for the State Normal School, at Arcata, to cost $17,000, and the construction of an addition to the State Prison, at San Quentin, to cost $5,700.

The American Society of Sanitary Engineering was given a special day at the exposition, on August 10th. Members of the society from all parts of the country were present at the Fillmore Street entrance at 2:30 o'clock. At this point they were met by exposition officials and escorted to Festival Hall. President Thomas J. Claffey of the society made a short talk, referring to the growing importance of sanitation as exemplified in the work at the Panama Canal. Charles A. Vogelsang of the exposition company welcomed the engineers and presented the society with a commemorative medal. At six o'clock the delegates were the guests of Thomas J. Farrell, chief inspector of plumbing in San Francisco at a dinner at the Inside Inn.

The contracts for the new $800,000 Wheeler Hall, at the California State University, are to let within a few days. The building will be erected on the university campus, at Berkeley.

Heavy shipments of pig lead are now leaving San Francisco by water for New York. This week two shipments aggregating over 17,000 tons left the harbor.

### Other Cities in the State.

The board of trustees, of Redondo Beach School District has advertised for bids for the construction of the new Central School Building, in Redondo. Separate bids will be received for the heating and ventilating, vacuum cleaning system, plumbing, electric wiring and telephone system.

The City Board of Education, of San Bernardino, has completed plans for the development of a complete private water system for the polytechnic high school. Twenty acres will be piped and a storage tank and electric pumps will be installed.

G. H. Coffin, proprietor of the El Monte Hardware & Plumbing Co., of El Monte, has sold out his hardware and paint departments to Hammersly & Ireland, but will continue the plumbing end of the business.

The plumbing firm of Vanderbilt & Williams, at Auburn, has been dissolved. I. W. Vanderbilt will continue the business at the old location.

The Public Service Commissioners of Los Angeles are in the market for a considerable quantity of cast steel elbows.

The Sierra Rancho, a tract of 8,000 acres, near Riverside, owned by W. J. Hole, of Los Angeles, is to be provided with a septic lake near the Santa Ana River. Large pumps will be installed to lift water to the land bordering the lake.

Taylor & Winnie have opened a plumbing established at Alturas.

C. F. Carlson and A. B. Goff have taken over the business of the Bell Plumbing Co, at 603 North Main Street, Santa Ana.

The Naylor Hardware & Plumbing Supply Co. has been incorporated at Berkeley, Cal.

The J. L. Mery Co., of Gridley, has secured the contract for installing a sprinkler plant at East Gridley, Cal., to cost $3,800.

Good progress is being made with the plans for the new Marine Barracks, at Mare Island Navy Yard, near Vallejo, and it is thought that bids for the construction will be opened some time next month. The last congress appropriated $200,000 for the Mare Island Barracks Brigade Post, and it is understood that after that structure is completed other quarters will be put up.

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Boone, Iowa—Andrew Anderson has secured the contract for plumbing the Washington School. Consideration, $1,188.

Richmond, Ky.—The Richmond Plumbing & Heating Co. has secured the contract for plumbing the court house at Cynthiana. Consideration, $1,400.

Kansas City, Mo.—The McMahon Co., of this city, has secured the contract for the installation of an up-to-date heating system in the Normal School, at Maryville, Mo. Consideration, $11,800.

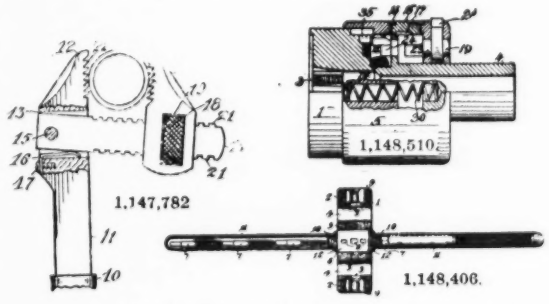
Fort Wayne, Ind.—Derheimer Bros., of 523 East Jefferson Street, have been awarded the contract for installing a vapor heating system at the Luthern Church and school building in New Haven, Ind. This firm also secured the contract for heating the Kneipp Sanitarium at Rome City, Ind.

# Patents

### Heating Department.

1,147,782. Pipe Wrench. Otto A. Carlson, Jamestown, N. Y. A wrench comprising a shank formed with a fixed jaw, said shank having a slot formed therethrough adjacent the jaw, a bar having one end pivotally mounted in said slot, a jaw adjustably mounted on the bar, and an L-shaped leaf spring having one end inset in the shank and the other end free and disposed in the slot and having an intermediate arched part bearing against the bar eccentrically to its pivotal connection, said free end of the spring being completely housed in the slot, said spring serving to swing the bar upwardly, and thus the movable jaw toward the fixed jaw.

1,148,510. Self Opening Adjustable Die Head. William H. Gates, New Haven, Conn. In combination with a die head carrying radially operating threading dies and a longitudinally operating shell embracing the head, of cam studs secured to the shell and passing through said head and supported thereby, said dies having cam grooves formed in their cutting faces and over their cutting edges adapted to register with the cam portion of the studs to actuate the radial movement of the dies to open and close, locking mechanism carried by the head and engaging the shell to hold the shell in an advanced position, and means for releasing the locking mechanism.

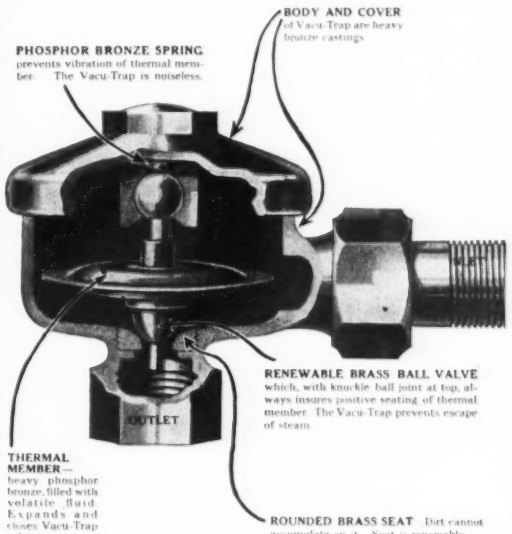



1,148,406. Die Stock and Tap Wrench. Edwin G. Reid, Osage City, Kan., assignor of one-half to Clinton S. Wolfe, Topeka, Kan. A die stock and tap wrench comprising a tap wrench body with removable handle members at the ends, and a die block having a peripheral series of sockets for receiving dies, and an axial passage shaped in conformity with the body of the tap wrench, said die block being engaged by the corresponding ends of the handles of the removable tap wrench when the tap wrench body and handles are applied to the die receiving block.

1,148,601. Vacuum-Producing Device. James McAlear, Chicago, Ill. A vacuum producing device comprising a tank, an air pipe leading to said tank, a steam pipe leading to said tank, a water pipe leading to said tank, controlling valves for said steam and water pipes, an automatic controlling device for said valve comprising an expanding device, a casing device so as to be moved thereby when the expanding device expands, means for opposing the movement of the lever by said expanding device, a connection between said lever and said water and steam valves so that when the lever is moved to open one valve, it closes the other, a steam con-


RELIABLE

Vacuum Heating Equipment


BODY AND COVER of Vacu-Trap are heavy bronze castings
PHOSPHOR BRONZE SPRING prevents vibration of thermal member. The Vacu-Trap is noiseless.
RENEWABLE BRASS BALL VALVE which, with knuckle ball joint at top, always insures positive seating of thermal member. The Vacu-Trap prevents escape of steam
OUTLET
THERMAL MEMBER— heavy phosphor bronze, filled with volatile fluid. Expands and closes Vacu-Trap when steam reaches it. When steam condenses in the radiator, thermal member contracts, the Vacu-Trap opens and condensation and air passes into the return piping.
ROUNDED BRASS SEAT. Dirt cannot accumulate on it. Seat is renewable.

## Simple, Isn't It?

Yes, and it's just as efficient and durable as it is simple in construction. These thermostatic "Vacu-Traps" automatically keep the heating system free from air, and drain the radiators on which they are used of all condensation, without loss or escape of steam.

VACU-TRAP

These valves insure thorough draining and quick air liberation at all times. They are noiseless, and the most positive-acting return line valves.

The superior design and extra heavy construction of the Vacu-Traps insure durability under expansion and contraction without danger of breakage. Each Vacu-Trap is properly and permanently adjusted at our factory, so no adjustments are necessary when installing, or later.

RELIABLE Heating Equipment for Air Line, Return Line and Vacu-Vapor Systems is standardized and carried in stock by most representative jobbers.

***Ask for Booklet "F," covering the big, complete Reliable line***

THE BISHOP-BABCOCK-BECKER CO.

Factories and General Offices, CLEVELAND, OHIO

New York, Chicago, Cincinnati, St. Louis, St. Paul, Milwaukee, San Francisco

Dole

**Graduated Packless Steam Valve**

is the steamfitter's standby. Reliable in every feature.

Easy to change to any capacity without dissembling parts.

Operates with one-half turn. Our valve literature will interest you—write for it.

**The Dole Valve Co.**
**208 N. Fifth Ave., Chicago**

*Complete line of Standard Steam and Hot Water Radiator Valves*

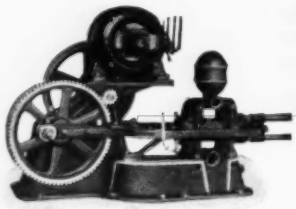


Fig. 170

Peters Water System Power Pumps. Unsurpassed in—

*Quality—*
*Durability—*
*Efficiency—*

*Write for A27 Water System Catalog*

**Peters Pump Co.**

Established 1890. Kewanee, Ill

**Just The Kind**

you are looking for—

**ROYAL Stop and Waste Valves**

A quarter turn of the handle closes the waste.

ROYAL BRASS GOODS give lasting service and continued satisfaction.

Our Motto: Not how CHEAP, but how GOOD.

Write us for Catalogue

**The Royal Brass Mfg. Co.**
**1418 E. 43rd St., Cleveland, O.**

**Crawford Combination Vise**

*Once Used — Always Used*

**Read This Letter from a Satisfied User:**

Toledo, Ohio, March 4, 1915.

Joseph H. Young Co.,
80-82 High St., Boston, Mass.

Gentlemen:—

Some time ago we bought two Crawford Combination Vises from you, and now find it necessary to buy another one, due to the fact that some one took a decided liking to one of ours and stole it within ten minutes after we put it on the job.

We think that this speaks fairly well for the vise.

Please send us another one at once and oblige.

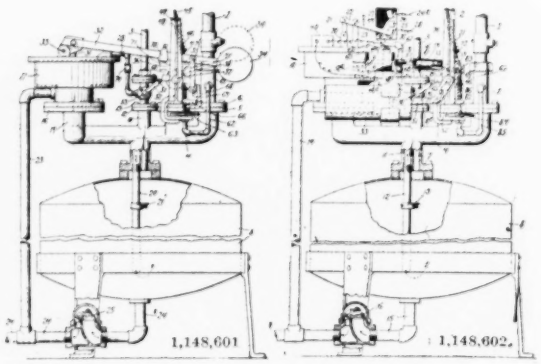
Yours very truly,
THOS. KEWLEY & SON.

*One trial will convince you. Write for prices.*

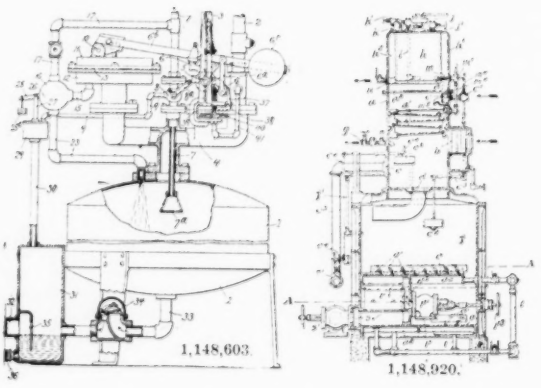
**Jos. H. Young Co.**

**82 High St. Boston, Mass.**

nection and a water connection leading to said casing controlled by the movement of said lever whereby when the lever is moved in one direction steam enters said tank and said casing and when the lever is moved in the opposite direction the steam is shut off and water enters said tank and said casing.



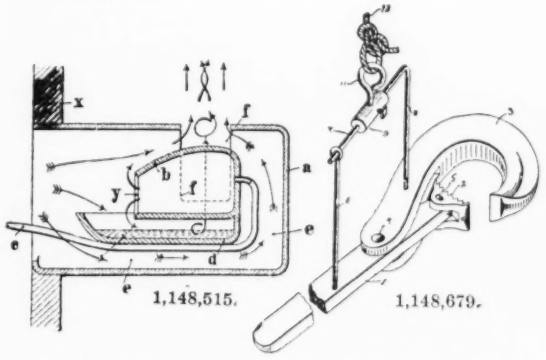

1,148,602. Valve. James McAlear, Chicago, Ill. A vacuum producing device comprising a tank, a vacuum connection leading to said tank, steam and water connections leading to said tank, valves for controlling said steam and water connections and an electro-magnetic device connected with said valves so as to move them, a switch actuated by said electro-magnetic device for varying the circuits therethrough, a second switch for controlling the circuits through said electro-magnetic device, a thermostatic device for controlling said latter switch, and a third switch controlled by the condition in said tank for stopping the electro-magnetic device at an intermediate point to hold said valves closed and to again start the electro-magnetic device when the vacuum reaches a pre-determined point.




1,148,603. Vacuum-Producing Device. James McAlear, Chicago, Ill. A vacuum producing device comprising a tank, a vacuum connection leading to said tank, a steam connection leading to said tank, a water connection leading to said tank, valves for controlling said steam and water connections, a controlling aparatus connected with said valves for alternately opening and closing them, a motor device for moving said controlling apparatus and starting and stopping devices for said motor device, responsive to variations in conditions in said tank.

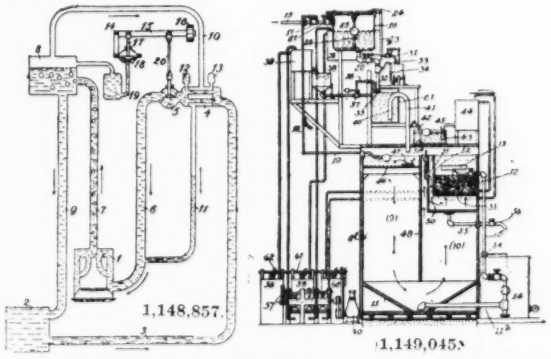
1,148,920. Apparatus for Purifying Water. Jacob M. Noll, Collingswood, N. J., assignor to Warren Webster & Co., a corporation of New Jersey. The combination with the heater-chamber of a feed-water heater, of means for supplying the water to be heated directly into said chamber, means to supply steam to said chamber, an upper chamber

located immediately above said heater-chamber and in direct communication with the interior thereof, a tank to contain chemical solution located within said upper chamber and heated by the steam passing into said chamber from the heater-chamber, and a discharge pipe for the heated solution leading from the chemical chamber to the heater-chamber.




1,148,815. Heating Device for Liquid Fuel. Arnold Iriniji, Hamburg, Germany. A burner for heavy oils comprising in combination a casing having an air inlet, and a flame slot in a side remote from the air inlet, and a vaporing chamber disposed within and spaced from the casing, having an outlet facing the air inlet and adapted to divide the air current from the said inlet into two currents which unite at the flame slot.

1,148,679. Pipe-Tongs Support. Temple B. Hoffer, Wichita Falls, Tex. In a device of the character described, the combination with a pipe tongs, of a pair of spaced vertical members extending rigidly upward from the tongs and arranged in a substantially equidistant relation to the center of gravity of the tongs, a horizontal member establishing connections between the upper ends of the vertical members, and a flexible vertically extending member attached to the horizontal member to support the tongs and adjustable between the ends of the horizontal member.

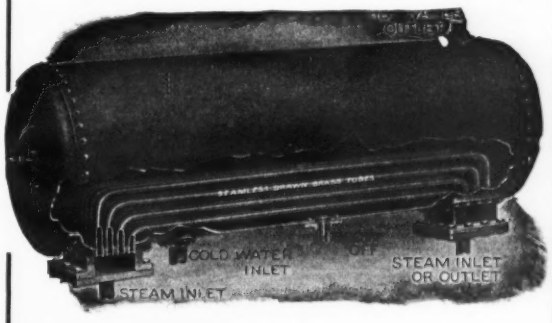



1,148,857. Hot-Water Heating Apparatus. Anders Borch Reck, Hellerup, Denmark. In a hot water heating apparatus, a water circuit, including a riser pipe and a return pipe, a steam generator in communication with the lower portion of the riser pipe, a steam chamber in communication with the upper end of the riser pipe, a valve in the return pipe and a pressure-operated motor in communication with the steam chamber for opening and closing said valve, respectively, as the steam pressure rises above or falls below certain predetermined limits.

1,149,045. Water-Purifying Apparatus. John C. W. Greth and Martin F. Newman, Pittsburgh, Pa., assignors to Wm. B. Scaife & Sons Co., Pittsburgh, Pa. A continuous flow of water treating and clarifying apparatus comprising a reaction compartment, means of supplying of reagents, inter-


**The Patterson Hot Water Tank**

is a long stride in advance in tank construction.
Unlike the ordinary hot water tank, there are no coils and return bends to become leaky.




**No Idle Heating Surfaces**

The Patterson contains a number of tubes having greater area than the steam pipe, so that all condensation discharges as rapidly as it forms.
Write for Catalog explaining other advantages of the Patterson Tank.

**Frank N. Patterson & Co.**
**26 Cortlandt Street NEW YORK**

**Detroit Valve and Fittings Co.**
*Manufacturers of*
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***DETROIT, MICHIGAN***
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**The American No. 32 Torch**

possesses many advantages over other torches. 100 per cent more heating power.

**SPECIAL FEATURES**

Filling lid on top. Regulating valve—Concave bottom—needle valve self-cleaning—Pump rod does not force back—Can be used in any position.

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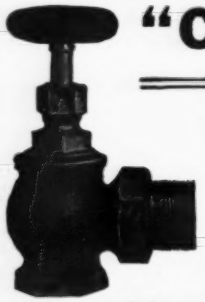

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Radiator Valves

All Valves thoroughly tested and inspected before shipment.

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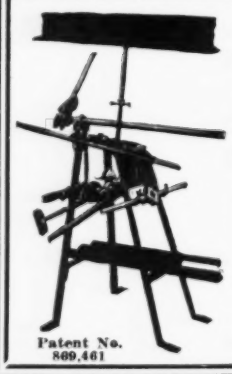
Capitol Brass Works
DETROIT, MICH.



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Handiest tool on earth. Folds up easily, is light, compact, and can be carried to the job by a boy. Soon pays for itself in saving of cartage alone. Fits any vise. Can be set up in a few minutes. Lasts a lifetime. Made in three sizes.

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Patent No. 869,461

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say there is no other trap "just as good" on the market.

Collects and holds all grease from sinks in hotels, restaurants, residences, etc.

Accessibility. The Boston Trap is made with an unusually large handhole, making it easiest to clean out.

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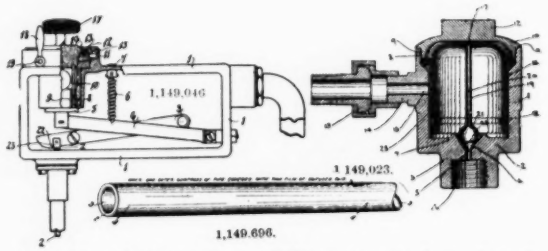
mittently operating devices for feeding fixed quantities of such reagents into said reaction compartment, governed in time of recurrence by the flow through the system, an upward flow settling compartment, a series of fiber filters at the top of the settling compartment having connections therewith including valved passages whereby the separate filters may be washed in place without contamination of the settling compartment, and means for minimizing sudden fluctuations in flow through the system.

1,149,046. Temperature Regulator. Isaiah Hall, Aston, Birmingham, England. In apparatus for regulating the controlling temperatures the combination of a casing through which gas is adapted to pass; a valve; a thermostat adapted to operate said valve; a valve seating having a screw thread upon its outer periphery; a seating support wherein the valve seating is screwed; a head upon the exterior of the casing secured against axial movement; and means for transmitting rotary movement from the said head to the said valve seating while permitting to the latter an independent axial movement.



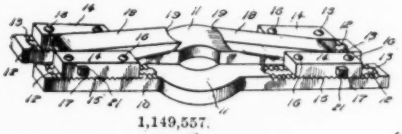

1,149,023. Relief Valve. William J. Burkart, Latrobe, Pa., assignor of one-half to Charles Howard Hook, Pittsburgh, Pa. A relief valve comprising a casing having its bottom formed with an inverted cone-shape pocket terminating in a discharge port, said pocket constituting a valve seat, a hollow globular valve associated and in connection with said seat providing a ball and socket connection, said valve having its lower portion provided with an outlet of greater diameter than said port, and means for controlling the movement of said valve, said means including a hollow stem opening into and conducting air to the valve, said stem open at its top and of less diameter than the valve, the bottom of said casing furthermore provided on its upper face with an annular ridge to set up a water trap, said ridge having its inner face forming a continuation of the wall of said cone-shape pocket.

1,149,696. Welded Pipe. Frank N. Speller, Pittsburgh, Pa., assignor to National Tube Co., Pittsburgh, Pa., a corporation of New Jersey. A steel buttweld pipe having scale free surfaces covered with a thin coating or film of unfused oxid formed thereon after the welding operation.

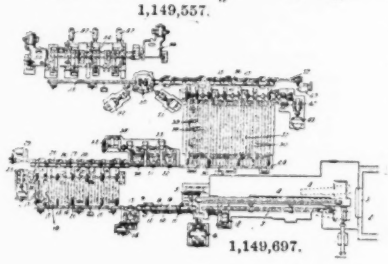
1,149,557. Pipe Clamp. Virgil H. Derrick, Gail, Tex. A pipe clamp comprising a pair of frame bars having arcuate oppositely disposed central sections adapted to embrace a pipe, and parallel end sections, said parallel end sections being longitudinally slotted and having the upper faces thereof transversely serrated, a pivot block mounted on each end section and having its inner face transversely serrated to engage with the serrations of the end section on which it is mounted, bolts passing through the pivot blocks and through the slots of the end sections and having nuts threaded on the shanks thereof to hold the blocks relative to the end sections and bars constituting clamping jaws pivoted adjacent their outer ends between the pivot blocks and having their inner free ends concaved to bear against the pipe embraced by the arcuate central sections of the frame bars.

1,149,697. Method of Making Butt-Weld Pipes. Frank N. Speller, Pittsburgh, Pa., assignor to National Tube Company, Pittsburgh, Pa., a Corporation of New Jersey. The

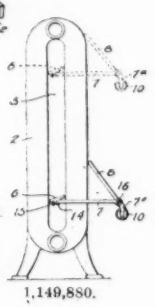
method of making butt weld pipes which consists in welding the heated pipe skelp, cooling the highly heated pipes to reduce the temperature of the inner surface thereof to between that at which the fused scale sets and that at which the exposed metallic surfaces of the pipes will oxidize, and then subjecting the pipes to rolling pressure to remove the fused scale and expose the metallic surfaces of the still heated pipes to the oxidizing influence of the atmosphere.



1,149,557.



1,149,697.

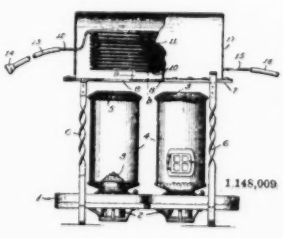


1,149,880.

1,149,880. Radiator Foot-Rest. August E. Wendt, Thorpe, Wis. A foot rest attachment for radiators, including a wing adapted to be inserted in the radiator passage, a supporting lever rigid with and projecting laterally from the wing, and a foot rest mounted upon the supporting lever so that the weight thereof acts through the lever to rotate the edges of the wing into a binding engagement with the radiator.

### Plumbing Department.

1,148,009. Bath-Heater. Edward Alexander Clark, Norfolk, Va. A bath heater comprising, a base piece, a burner supported thereby, an open-topped radiator drum disposed above and around the burner of the heater, a plate supported a distance above the drum, and provided with an opening above the opening in the top of the drum, a perforated saddle supported by the plate, a bunched coil of pipe supported by the saddle and presenting itself above the openings in the plate and drum and adapted for connection with a source of cold water supply and hot water delivery, and a hood supported by the plate and inclosing the coil, substantially as set forth.



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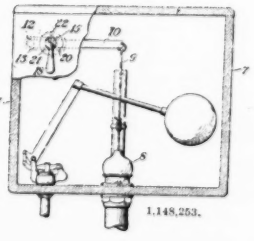

1,148,253.

1,148,253. Flushing Device. Arthur J. Podmore, Camden, N. J., and John P. Croasdale, Berwyn, Pa., assignors to Camden Pottery Company, a corporation of New Jersey. In a device of the class described, a flush tank, a lever, a valve operated thereby, a spindle between the valve connection and the fulcrum of the lever and a lever actuating member connected with the spindle and having a limited two-way rotary movement in response to the actuation thereof, said member having a plurality of projections, two of said projections adapted, when said member is stationary, to lie in substantially the same horizontal plane as the lever and to support the same, either one of said projections adapted, when said member is rotated, to actuate the lever to operate

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**Slotted Screw Bumpers**

The kind you can use anywhere—on any job.

Made in full sizes of gray, white or red rubber, with No. 10 wood screw moulded securely in same and held in position by special brass washer imbedded in head.

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Send us your specifications or blue prints of any rubber parts desired, and we will submit samples with prices.

Try these bumpers on your next job and you will use no other kind in future.

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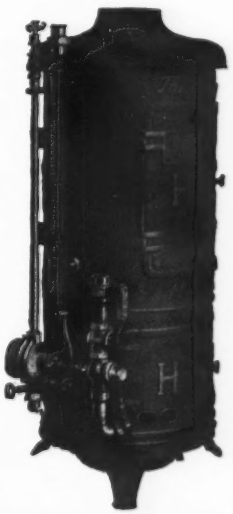

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Costs less—does more. A high grade heater at a competitive price.

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fits any closet seat—saves mothers time, work and worry—educates the little ones—is modern, sanitary. Write for prices.
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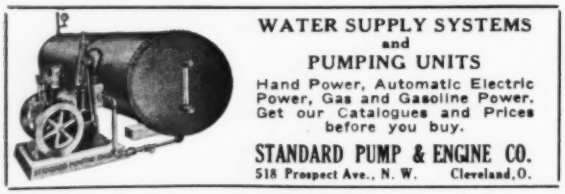
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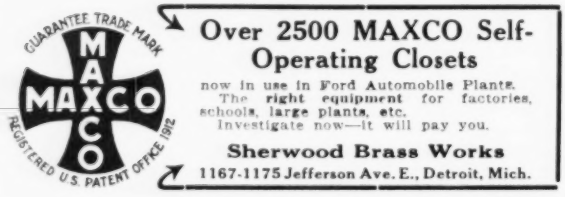
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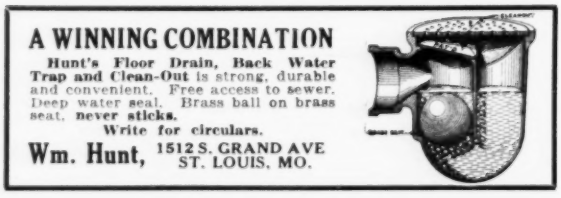
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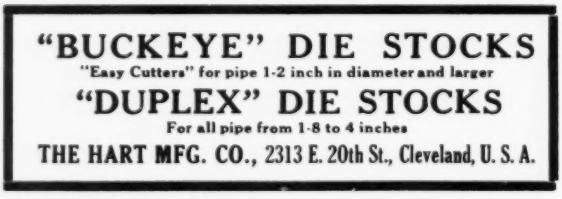
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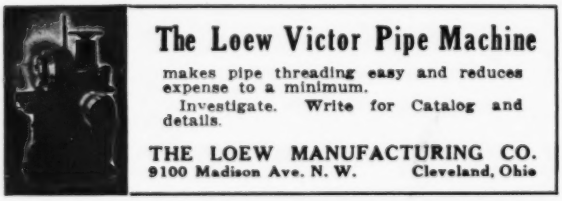
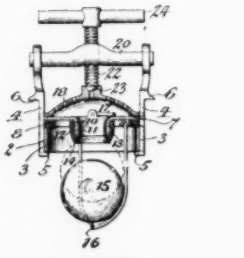

The Loew Victor Pipe Machine
makes pipe threading easy and reduces expense to a minimum.
Investigate. Write for Catalog and details.
THE LOEW MANUFACTURING CO.
9100 Madison Ave. N. W. Cleveland, Ohio


the valve, and a projection fixed to said lever actuating member and adapted to limit the upward actuation of the lever.

1,147,702. High-Water Trap. George P. Bower, Buffalo, N. Y. A high water trap, comprising a supporting ring adapted to be secured in a drain pipe, a diaphragm mounted on the upper edge of said ring and provided on its underside with a valve seat, a valve adapted to be lifted by water into engagement with said seat, a screen arranged above said diaphragm, and means for detachably connecting said ring, diaphragm and screen, comprising two upright straps engaging with notches in opposite peripheral parts of the supporting ring, diaphragm and screen and each having an inwardly projecting lug engaging with the underside of said ring and a clamping device interposed between the upper ends of said straps and said screen.

1,147,764. Lever-Operating Mechanism. Oscar T. Theleen, Kenosha, Wis., assignor to Frost Manufacturing Company, Kenosha, Wis., a Corporation of Wisconsin. In leverage mechanism, the combination with a bearing sleeve, of a rockable shaft journaled therein, said bearing sleeve and rockable shaft having registering apertures, and a handle having a transverse socket fitting over said apertured portion, said handle having a concealed securing member extending through the registering apertures, the aperture in the bearing sleeve being slightly larger than the securing member whereby a limited rotating movement of the rockable shaft is permitted.



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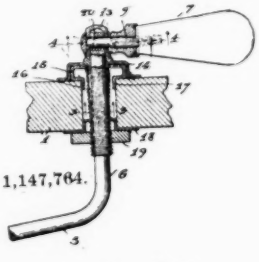
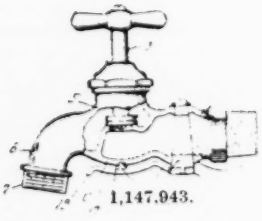
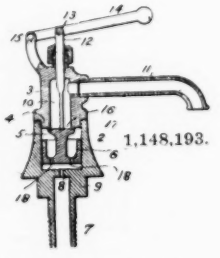


1,147,764.



1,147,943.

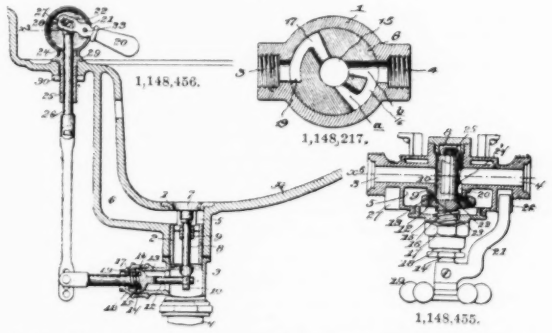


1,148,193.

1,147,943. Faucet. Charles M. Hoffman, Lebanon, N. H. The combination with a faucet having a body provided with stem and plug valves, of a projection at the end of the plug valve, a resilient lever having a contour corresponding substantially to the shape of the exterior surface of the body to lie in close proximity thereto, and having a slotted end engaged with the projection, the said body being formed with a recess, a protuberance on the inner side of the lever near its free end and correspondingly shaped to the recess for locking engagement therein under the resiliency of the said lever, and a handle on the stem of the other valve and located on the side of the body diametrically opposite the lever.

1,148,193. Faucet. Jefferson C. Ross and George F. McCully, Vancouver, British Columbia, Canada, assignors to The American Automatic and Springless Faucet Company, Seattle, Wash., a Corporation of Washington. A water faucet the body of which is constructed in two parts which are screw-connected together, one part having an inlet aperture which is adapted to be connected to the water service

and has provision for attachment of the fitting to the plate on which it is adapted to be mounted, said part having also a cylindrical chamber in axial alinement with the body, which chamber is in communication with the water service inlet through a restricted axial aperture, the other part of the body having an outlet aperture in axial alinement with the cylindrical chamber, which aperture is in communication with the delivery outlet of the valve, a piston endwise movable within the cylindrical chamber, said piston having a valve projection which at the upper limit of the piston's movement will seat on and close the outlet aperture, said piston having also apertures through it the area of which apertures is less than that of the delivery outlet of the faucet, and a stem movable axially through the upper part of the faucet body and projecting downward through it into engagement with the valve projection of the piston, and a handle lever pivotally mounted to the body of the faucet and pin-connected to the upper end of the stem.




1,148,456. Waste-Valve. Thomas H. Kenney, Boston, Mass., assignor to Dalton-Ingersoll Manufacturing Company, a Corporation of Massachusetts. The combination with a waste valve; of a pivotally supported lever to operate said waste valve; a link connected with said lever, the upper end of said link being cut away at one side and provided with a lateral projection; a guide sleeve for said link; an inclosing casing connected with said guide sleeve, and having a small lateral opening; and an actuating lever having a cylindrical hub portion approximately fitting said opening and being pivotally supported therein, the inner end of said lever being cut away at one side and having an elongated slot which engages with the laterial projection from the link.

1,148,217. Faucet. George Meade Charles, Chicago, Ill. A faucet, having in combination a chambered shell provided with oppositely-disposed inlets and a common outlet, a chambered valve having ducts arranged to register with the shell-inlets, one of said ducts comprising two separated apertures connected together by a shallow passageway, and the other comprising a single aperture and a shallow recess leading thereto, and means indicating the several positions to which the valve may be turned to draw different temperatures of water.

1,148,455. Mixing-Valve. Thomas H. Kenney, Boston, Mass., assignor to Dalton-Ingersoll Manufacturing Company, a Corporation of Massachusetts. A mixing valve having a cylindrical inlet chamber provided at opposite sides with hot and cold water inlets, and at the end with an outlet; a compression cock controlling said outlet, the stem of said cock projecting into said chamber; and the face of the valve member thereof being provided with an annular series of holes; a cylindrical valve fitting the inlet chamber and being sleeved on said stem, said valve having a lateral pocket wider than the distance between the inlet ports; a projection at the end of said valve to engage in any of the holes in the face of the valve member of the compression cock; and a nut to hold said valve longitudinally on said stem.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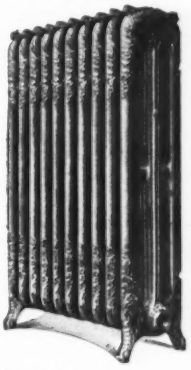
**Radiators**



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Neat, ornamental, durable.

All patterns steam and water.

Highest quality radiation at a reasonable price.

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**Logansport, Indiana**

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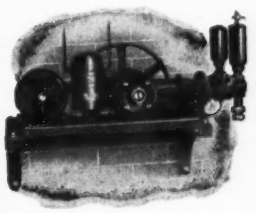

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Fort Wayne Engineering & Mfg. Co.
Fort Wayne, Ind.

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SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf.

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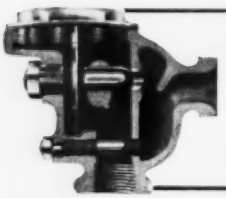

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